CD CDV LD PLAYER

LVD-K9200

SERVICE MANUAL

KENWOOD

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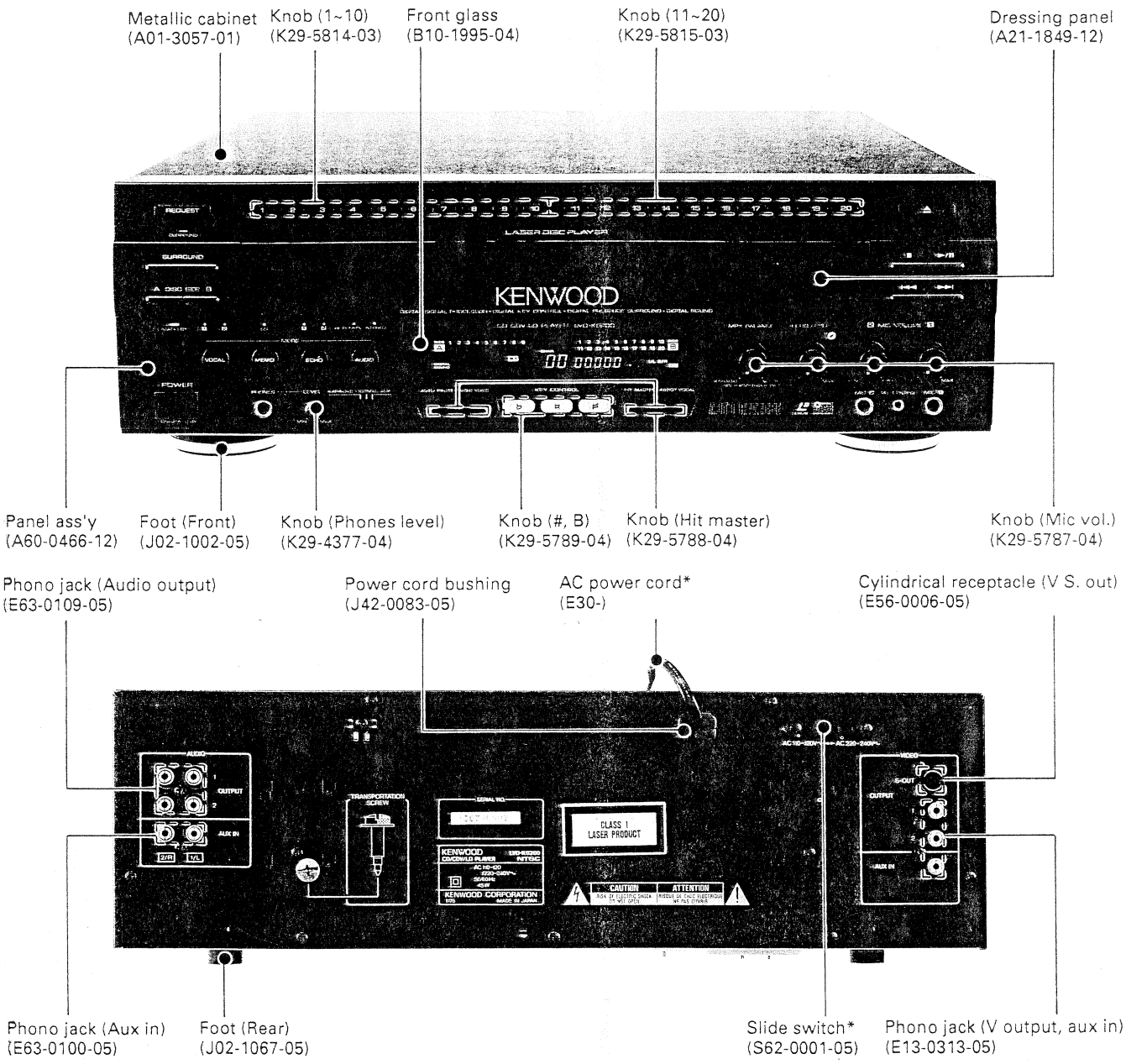
B51-4814-00 (O) 559



In compliance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulations No. 21 CFR 1040. 10, Chapter 1, Subchapter J.

DANGER : Laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.

*** Refer to parts list on page 75.**

LVD-K9200

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CONTENTS

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SPECIFICATIONS ..... BACK COVER

*Refer to the following service manual, if need description about item of table.

Service manual parts No. : DP-950 (B51-4351-00), LVD-320 (B51-4629-00), LVD-K101 (B51-4260-00)

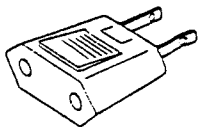
UNIT	Ref No.	Parts No.	Function Name	Reference service manual	Reference page
X29-2450	IC11	CXA1571S	RF amp	DP-950	P.13
	IC20	HA11529	Servo IC	LVD-320	P.22
X25-5410	IC12	YSS205-F	KARAOKE D.S.P.	LVD-K101	P.16
X35-2120	IC3	CA0002AM	Analog audio signal processor	LVD-320	P.24
	IC4	CXD2500BQ	Digital signal processor	LVD-320	P.25
	IC6	SM5872BS	Digital filter & D/A convertor	LVD-320	P.28
	IC52	YM3558	Video FM signal demodulation	LVD-320	P.30
	IC62	YVL151C	Video signal processor	LVD-320	P.33

ACCESSORIES

- Audio cord (E30-0505-05) 1

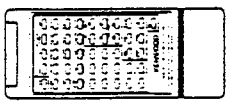
- Video cord (E30-1427-05) 1

- AC plug adaptor ..... 1 (E03-0115-05) : M type only

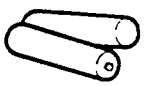


(Except for some areas)
For the unit with a European AC plug in areas other than Europe.

- Remote control unit 1 (A70-0945-05)



- Battery (AAA/R6) ..... 2 (–)

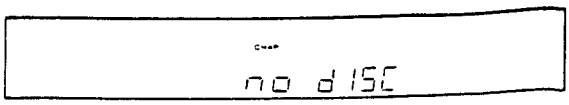


Battery cover (A09-0114-08)

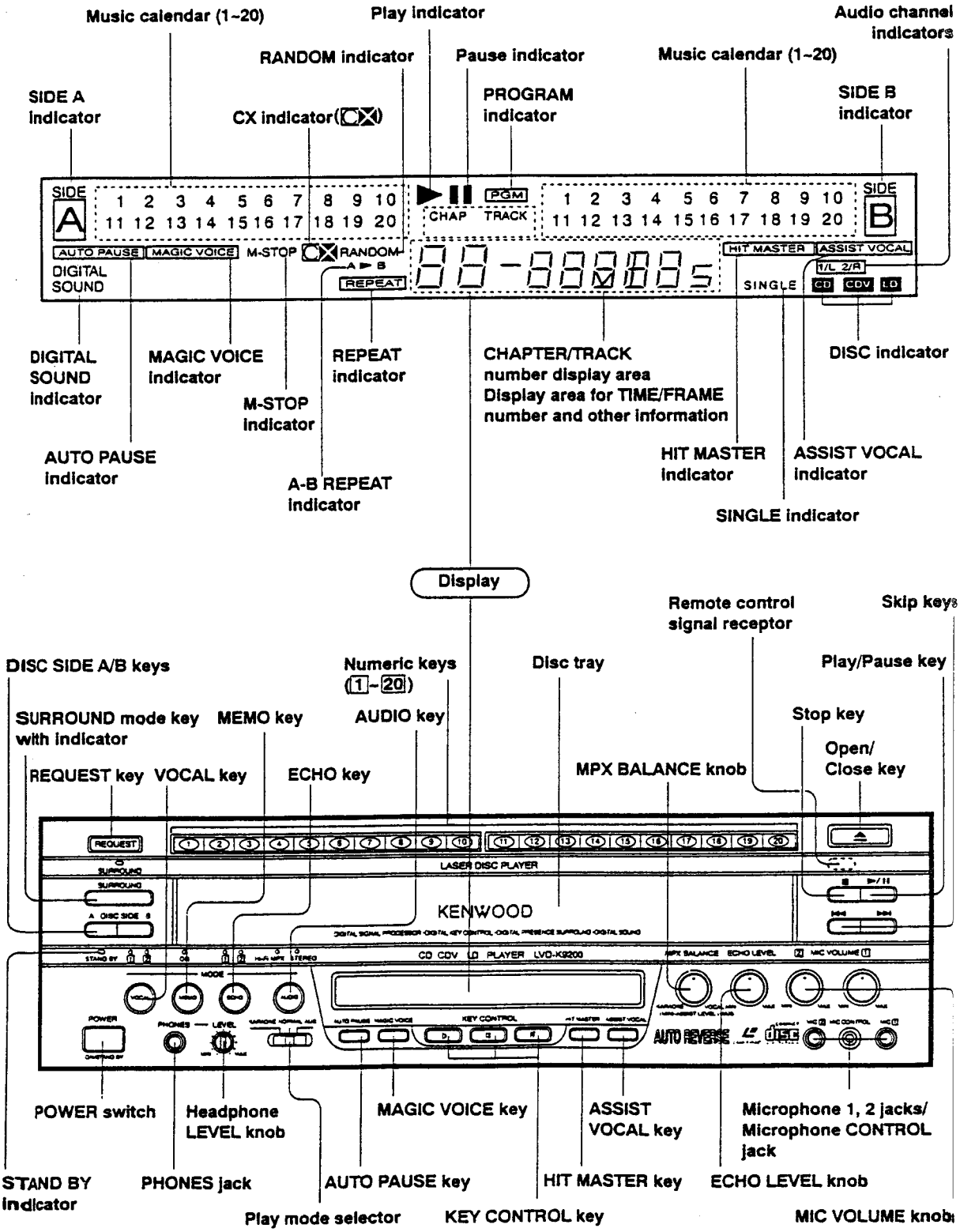
Note related to transportation and movement

Before transporting or moving this unit, carry out the following operations.

1. Turn the power ON but do not load a disc.
2. Wait a few seconds and verify that the display shown appears.
3. Turn the power OFF.
4. Fasten the transportation screw into the base screw hole.

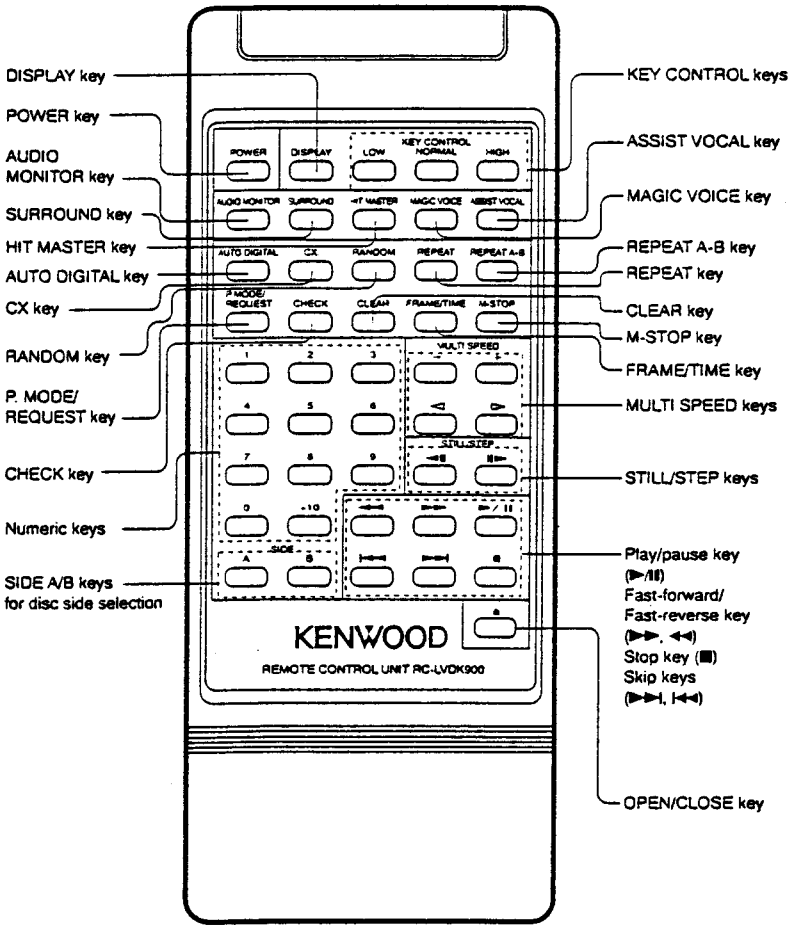


CONTROL


Music calendar (1~20)
Play indicator
Audio channel indicators
RANDOM indicator
Pause indicator
Music calendar (1~20)
SIDE A indicator
CX indicator(CX)
PROGRAM indicator
SIDE B indicator
SIDE A
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
PGM
CHAP TRACK
SIDE B
AUTO PAUSE
MAGIC VOICE
M-STOP
RANDOM
A-B
REPEAT
HIT MASTER
ASSIST VOCAL
T/L 2/R
DIGITAL SOUND
SINGLE
CD CDV LD
DIGITAL SOUND indicator
MAGIC VOICE indicator
REPEAT indicator
CHAPTER/TRACK number display area
Display area for TIME/FRAME number and other information
DISC indicator
M-STOP indicator
AUTO PAUSE indicator
A-B REPEAT indicator
HIT MASTER indicator
ASSIST VOCAL indicator
SINGLE indicator
Display
Remote control signal receptor
Skip keys
DISC SIDE A/B keys
Numeric keys (1-20)
Disc tray
Play/Pause key
SURROUND mode key with indicator
MEMO key
AUDIO key
Stop key
Open/ Close key
REQUEST key
VOCAL key
ECHO key
MPX BALANCE knob
REQUEST
LASER DISC PLAYER
KENWOOD
CD CDV LD PLAYER LVD-K9200
POWER switch
Headphone LEVEL knob
MAGIC VOICE key
ASSIST VOCAL key
Microphone 1, 2 jacks/ Microphone CONTROL jack
STAND BY indicator
PHONES jack
AUTO PAUSE key
HIT MASTER key
ECHO LEVEL knob
Play mode selector
KEY CONTROL key
MIC VOLUME knob

LVD-K9200

REMOTE CONTROL OPERATION

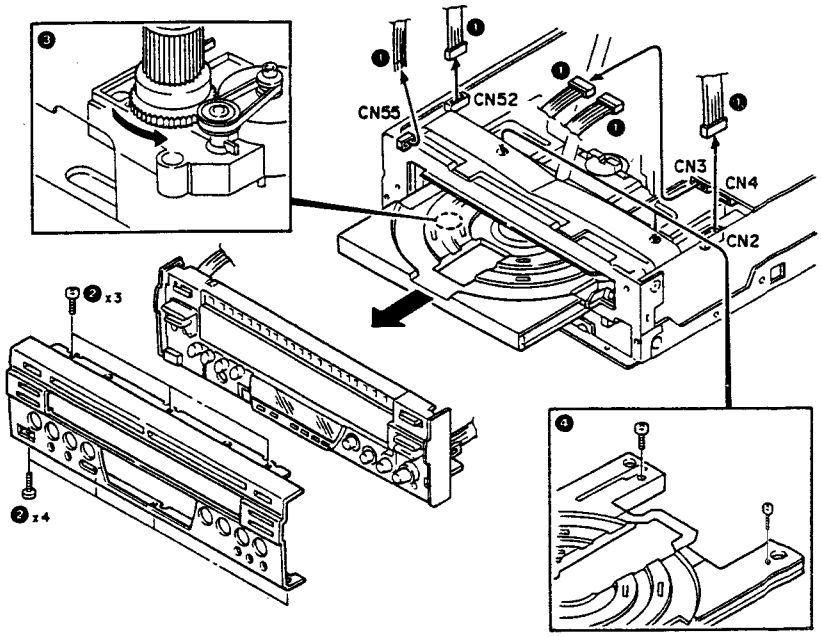


MODEL: RC-LVDK900
TRANSMISSION SYSTEM:
INFRARED PULSE SYSTEM

DISASSEMBLY FOR REPAIR

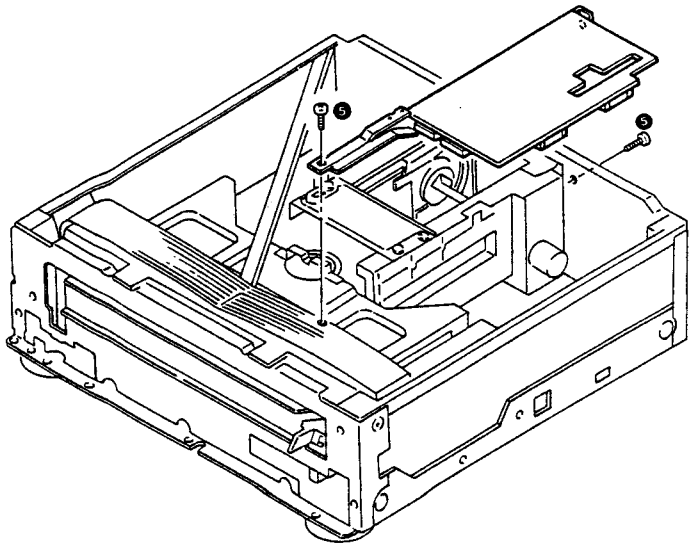
1. Removing the Tray

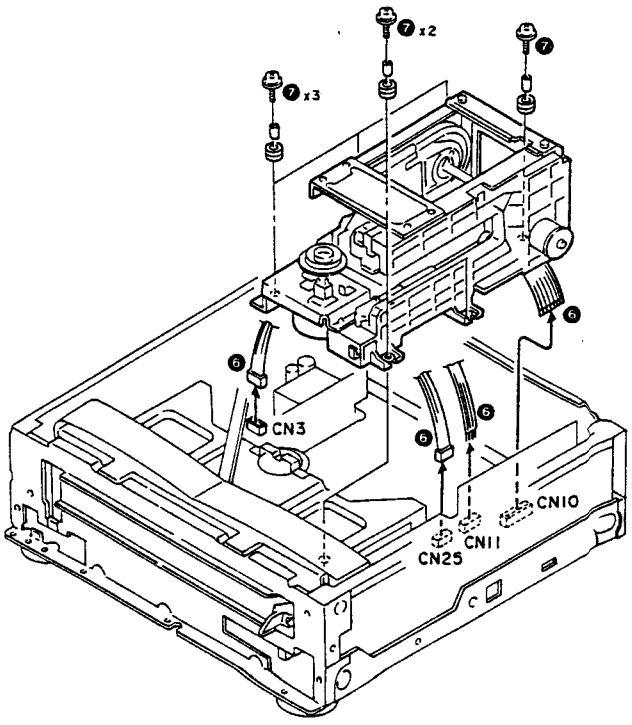
1. Disconnect the five connectors (❶).
2. Remove the seven screws (❷), then remove the front panel and sub panel.
3. Turn the loading gear (❸), then pull out the tray.
4. Loosen the two screws (❹), then remove the tray.



2. Removing the Mechanism Ass'y

1. Remove the two screws (❺), then remove the unit.
2. Disconnect the four connectors (❻).
3. Remove the six screws (❼), then remove the mechanism ass'y.

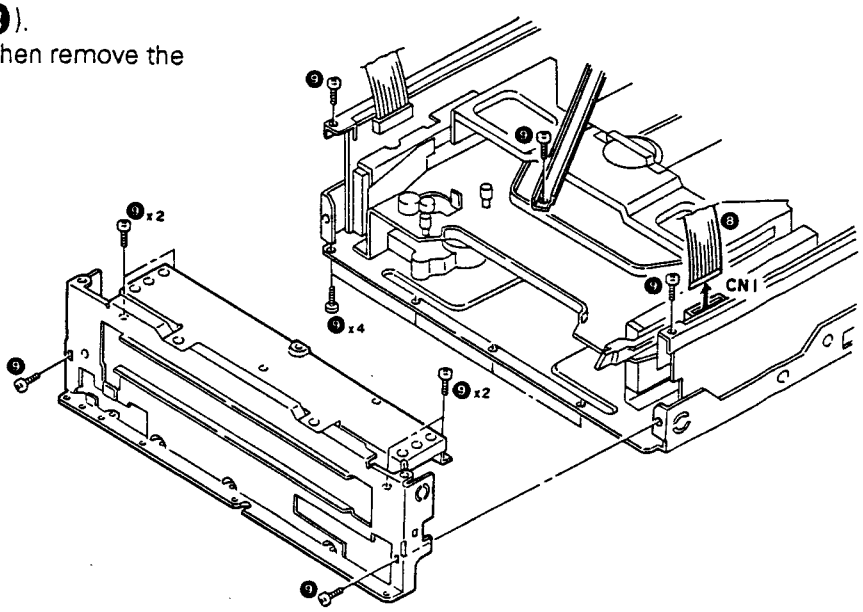




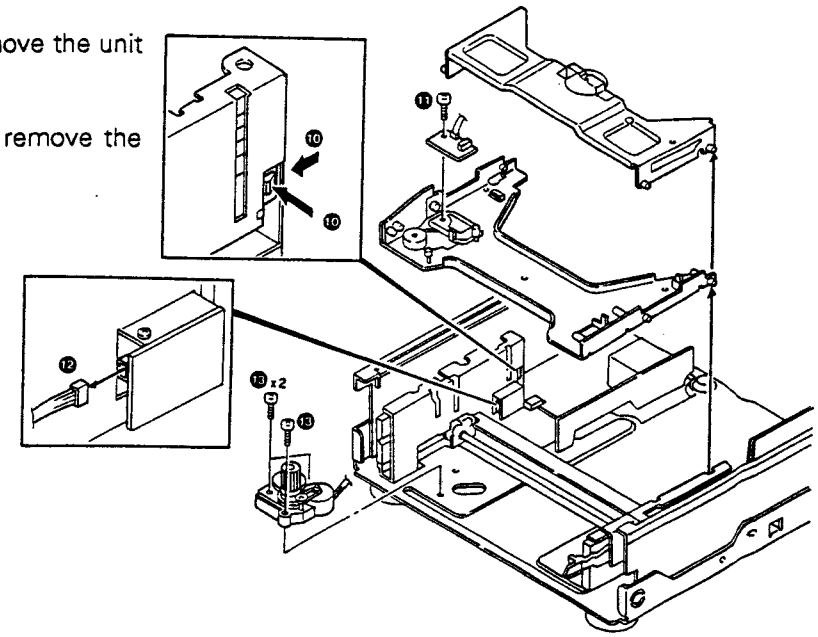
DISASSEMBLY FOR REPAIR

3. Removing the Loading Ass'y

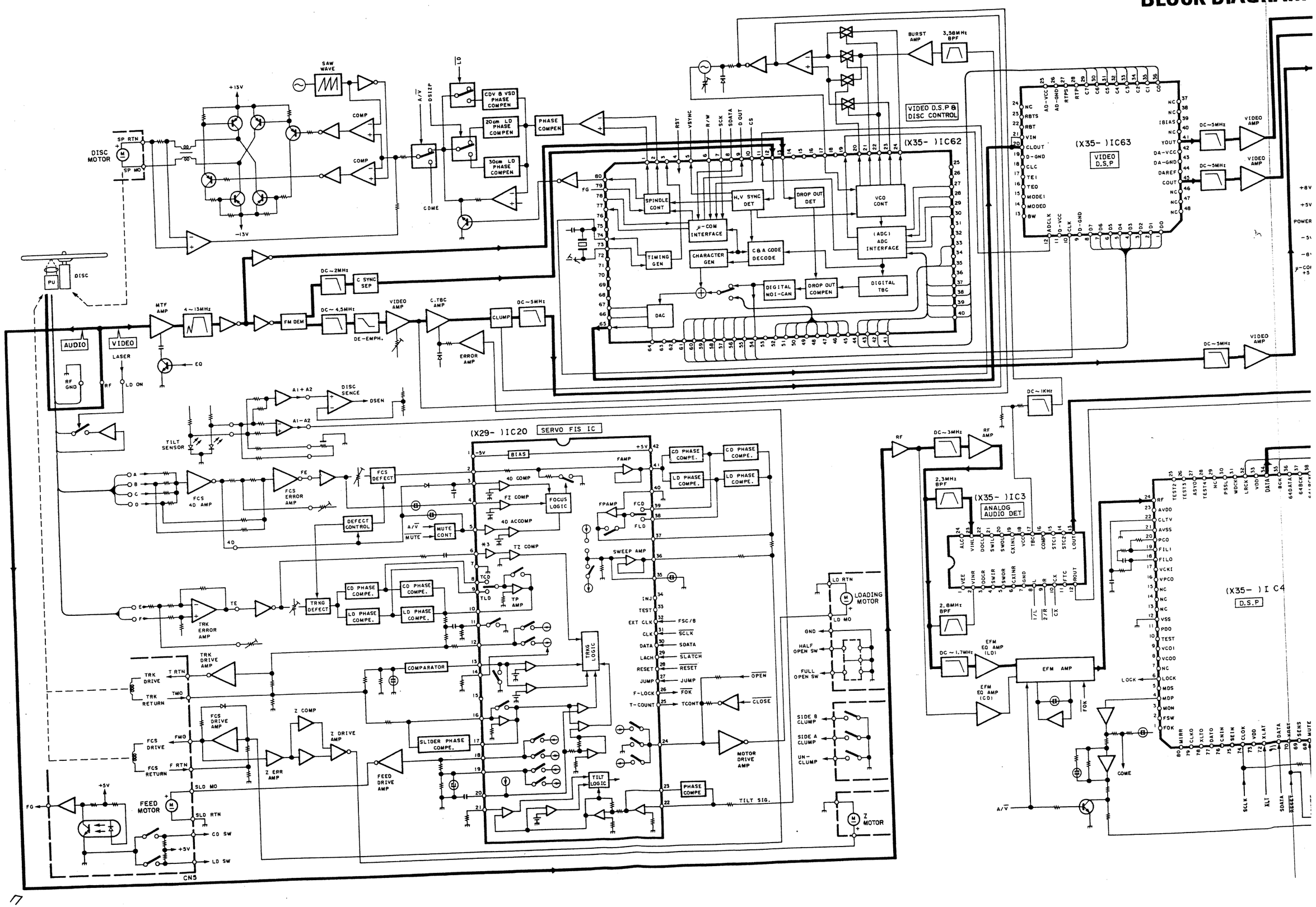
1. Disconnect the one flexible cord (❽).
2. Remove the thirteen screws (❾), then remove the front frame.



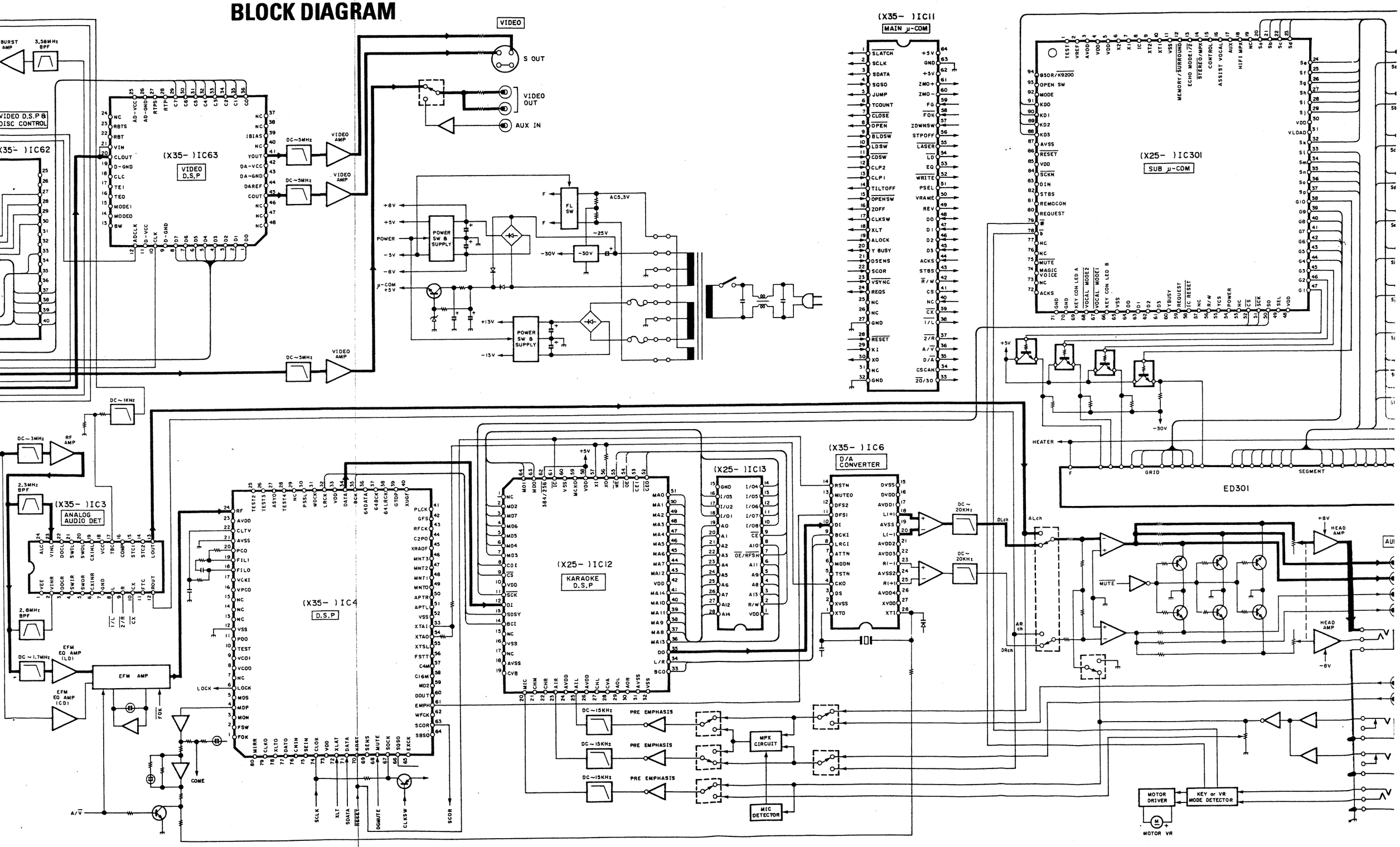
3. Remove the hook (❿).
4. Remove the one screw (⓫), then remove the unit and two frames.
5. Disconnect one connector (⓬).
6. Remove the three screws (⓭), then remove the loading gear ass'y.



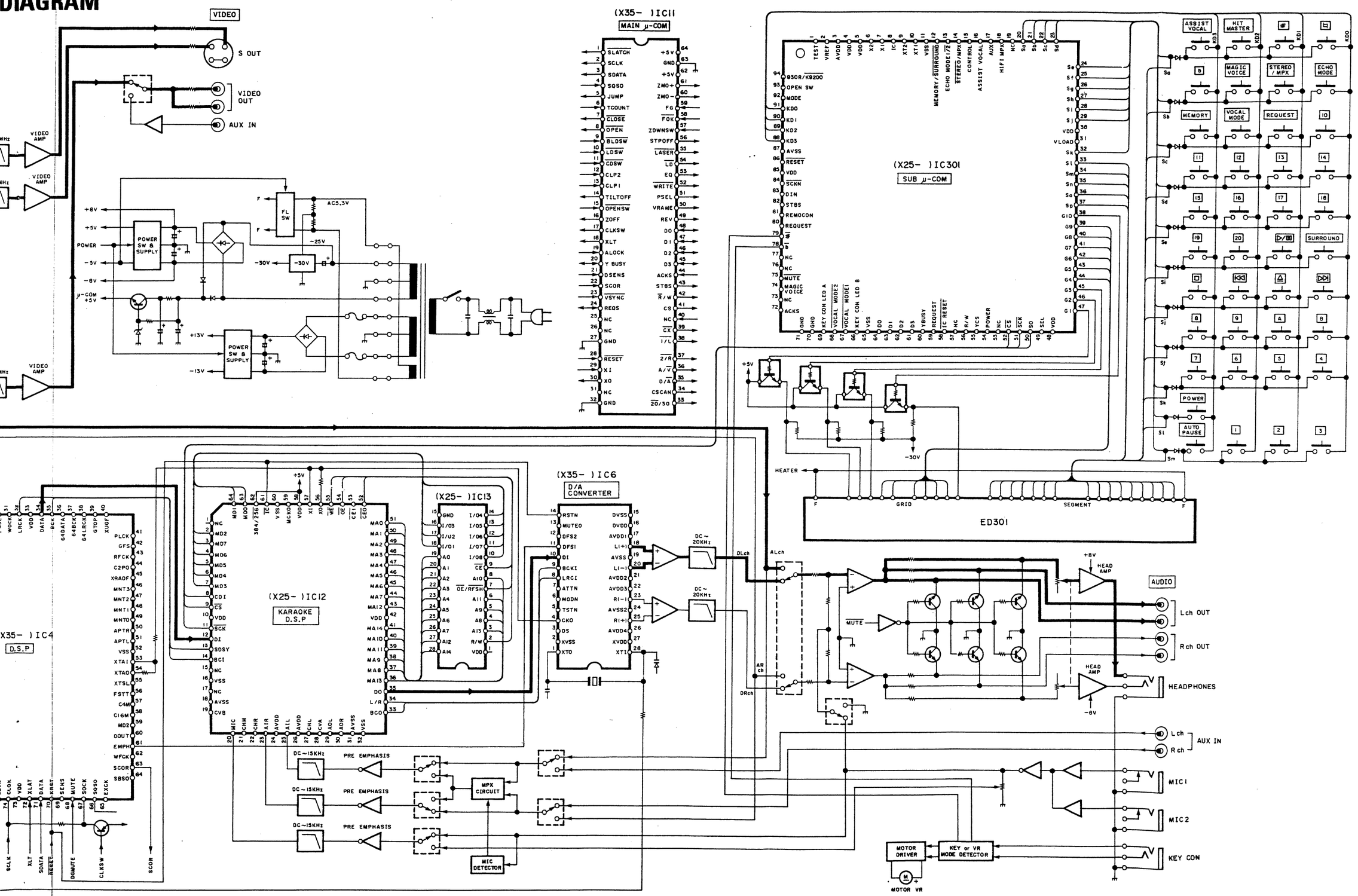
BLOCK DIAGRAM



BLOCK DIAGRAM

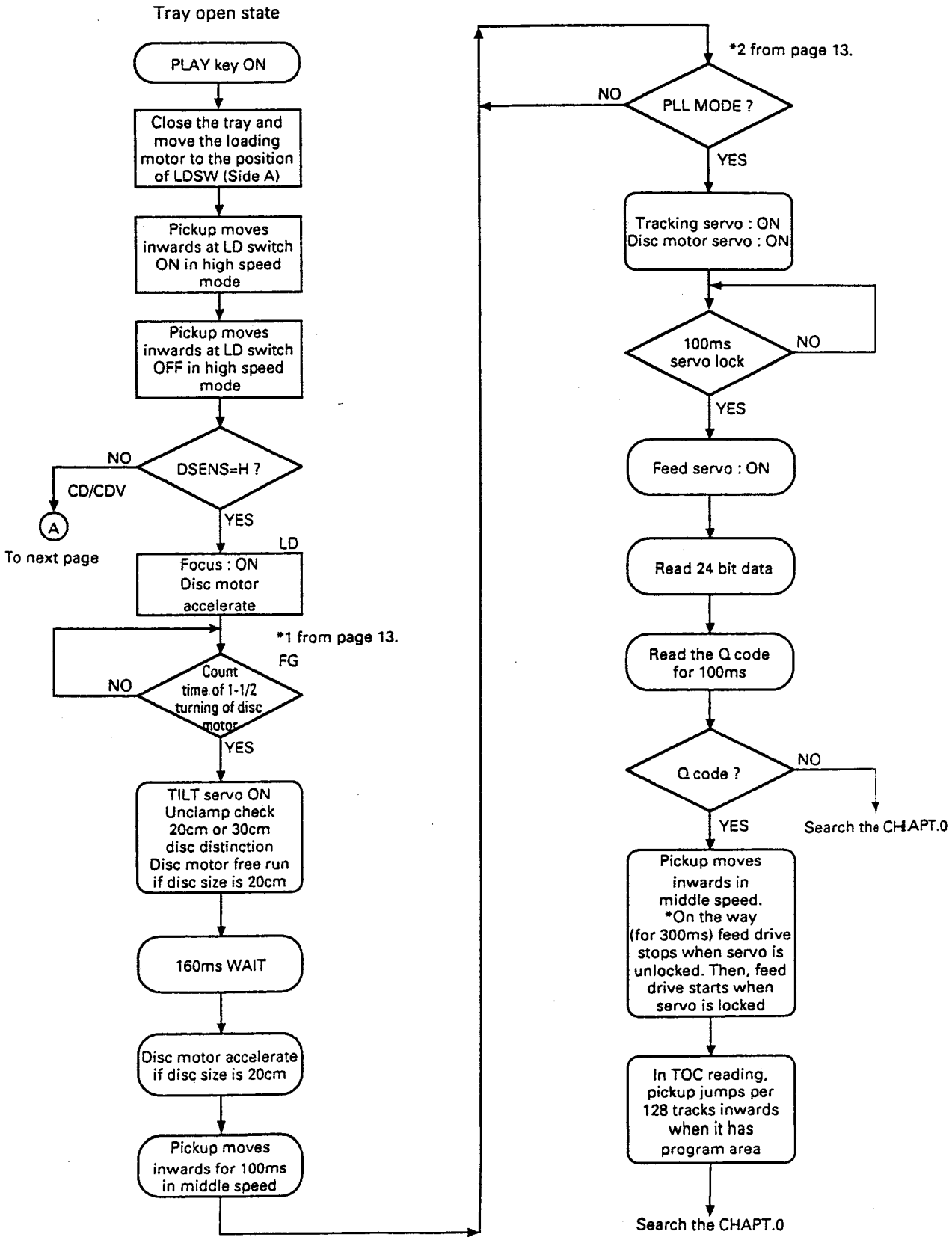


DIAGRAM


VIDEO
S OUT
VIDEO OUT
AUX IN
VIDEO AMP
VIDEO AMP
VIDEO AMP
POWER SW & SUPPLY
POWER SW & SUPPLY
FL SW
AC5.3V
+8V
+5V
POWER
-3V
-8V
μ-COM +5V
+13V
-13V
-25V
-30V
(X35-)IC11
MAIN μ-COM
(X25-)IC301
SUB μ-COM
(X35-)IC6
D/A CONVERTER
(X25-)IC13
(X25-)IC12
KARAOKE D.S.P
(X35-)IC4
D.S.P
ED301
GRID
SEGMENT
HEATER
ASSIST VOCAL
HIT MASTER
MAGIC VOICE
STEREO /MPX
ECHO MODE
MEMORY
VOCAL MODE
REQUEST
SURROUND
POWER
AUTO PAUSE
DC ~ 20KHz
DC ~ 15KHz
PRE EMPHASIS
MPX CIRCUIT
MIC DETECTOR
DLch
ALch
DRch
ARch
MUTE
HEAD AMP
AUDIO
Lch OUT
Rch OUT
HEADPHONES
AUX IN
MIC1
MIC2
KEY CON
MOTOR DRIVER
KEY or VR MODE DETECTOR
MOTOR VR

CIRCUIT DESCRIPTION

1. Flow Chart for Disc Starting


Tray open state
PLAY key ON
Close the tray and move the loading motor to the position of LDSW (Side A)
Pickup moves inwards at LD switch ON in high speed mode
Pickup moves inwards at LD switch OFF in high speed mode
DSENS=H ?
NO
CD/CDV
YES
A
To next page
LD
Focus : ON
Disc motor accelerate
*1 from page 13.
FG
Count time of 1-1/2 turning of disc motor
NO
YES
TILT servo ON
Unclamp check
20cm or 30cm disc distinction
Disc motor free run if disc size is 20cm
160ms WAIT
Disc motor accelerate if disc size is 20cm
Pickup moves inwards for 100ms in middle speed
*2 from page 13.
PLL MODE ?
NO
YES
Tracking servo : ON
Disc motor servo : ON
100ms servo lock
NO
YES
Feed servo : ON
Read 24 bit data
Read the Q code for 100ms
Q code ?
NO
YES
Search the CHAPT.0
Pickup moves inwards in middle speed.
*On the way (for 300ms) feed drive stops when servo is unlocked. Then, feed drive starts when servo is locked
In TOC reading, pickup jumps per 128 tracks inwards when it has program area
Search the CHAPT.0

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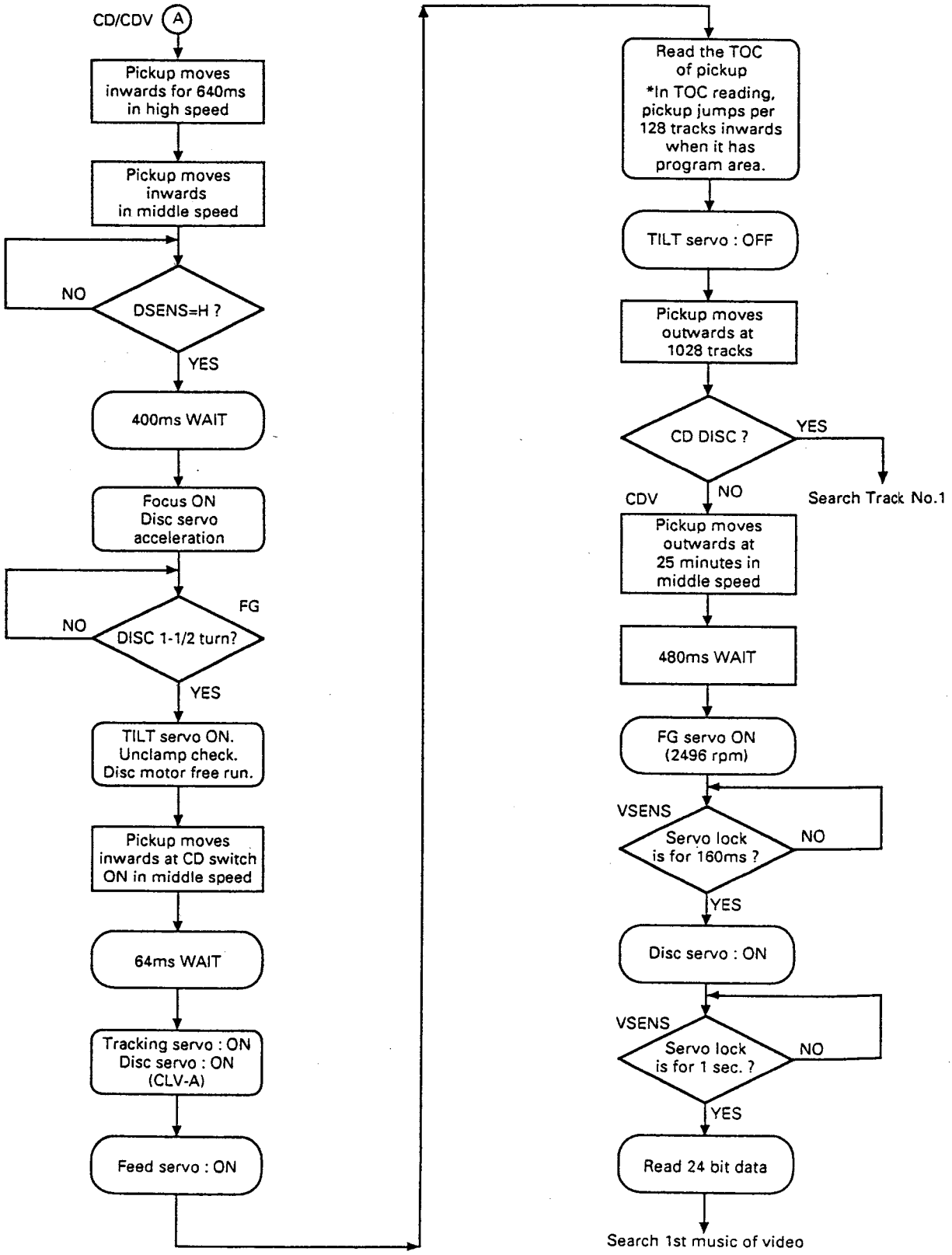
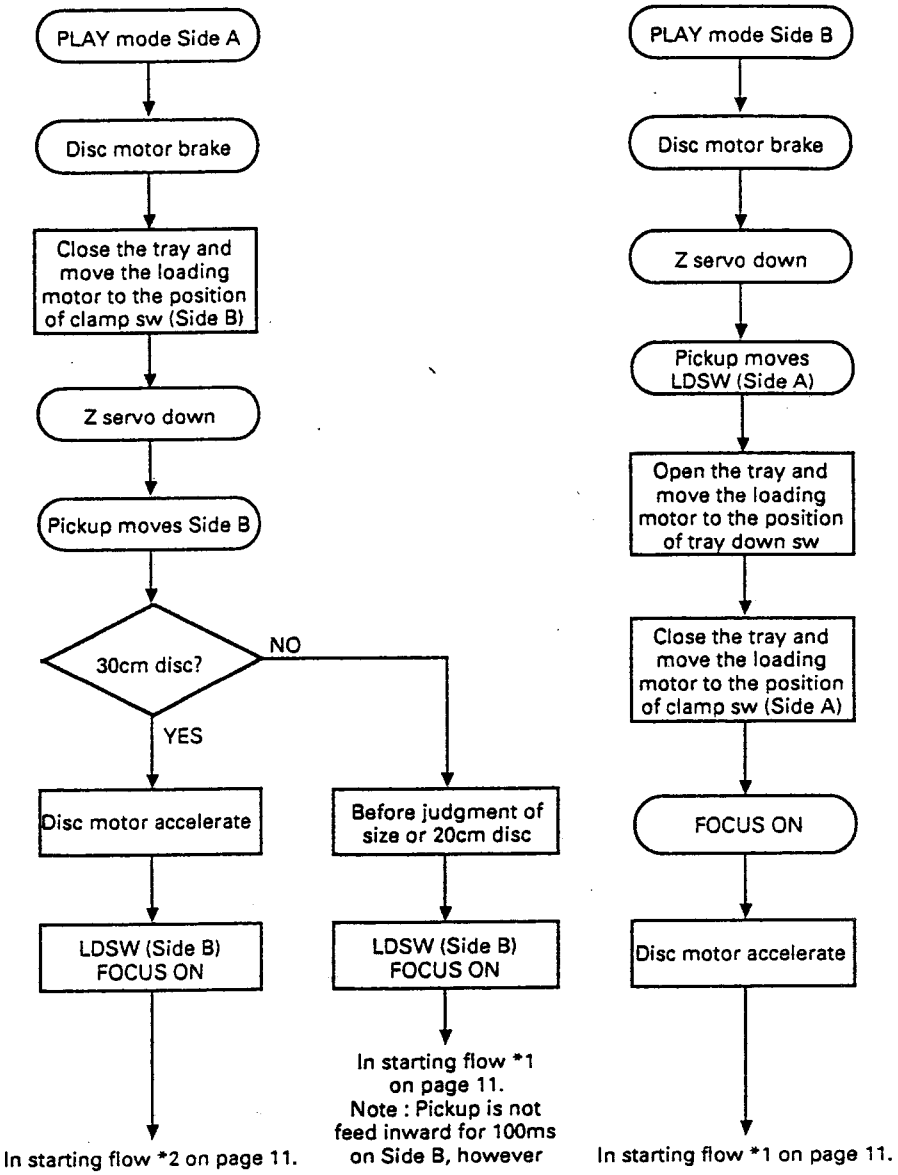
CIRCUIT DESCRIPTION



CIRCUIT DESCRIPTION

• Control for inverted to side A → side B, side B → side A

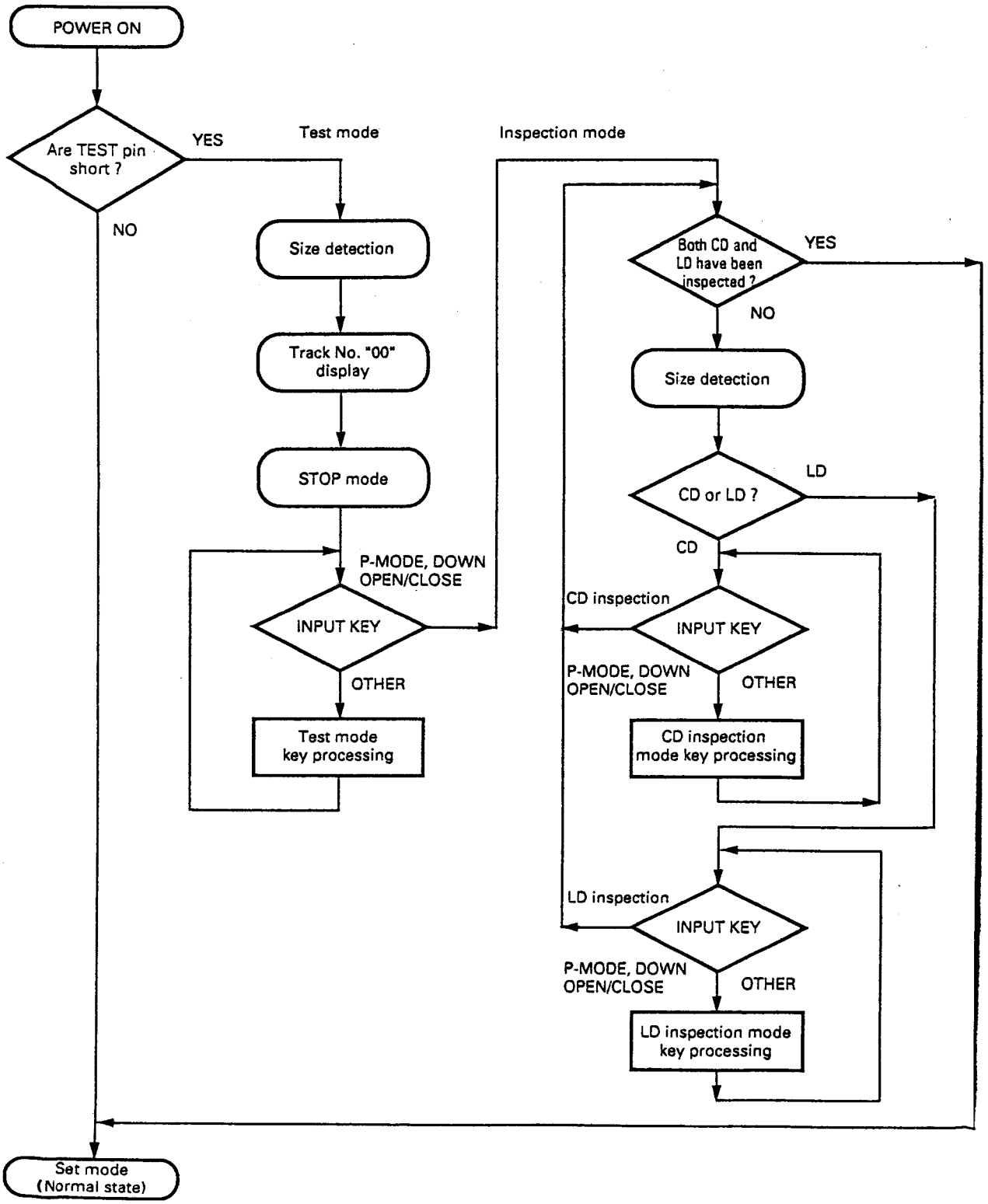

PLAY mode Side A
Disc motor brake
Close the tray and move the loading motor to the position of clamp sw (Side B)
Z servo down
Pickup moves Side B
30cm disc?
NO
YES
Disc motor accelerate
LDSW (Side B) FOCUS ON
In starting flow *2 on page 11.
Before judgment of size or 20cm disc
LDSW (Side B) FOCUS ON
In starting flow *1 on page 11. Note : Pickup is not feed inward for 100ms on Side B, however
PLAY mode Side B
Disc motor brake
Z servo down
Pickup moves LDSW (Side A)
Open the tray and move the loading motor to the position of tray down sw
Close the tray and move the loading motor to the position of clamp sw (Side A)
FOCUS ON
Disc motor accelerate
In starting flow *1 on page 11.

CIRCUIT DESCRIPTION

2. Test Mode

2-1. Setting the Test mode

This microprocessor built in this unit can be put to TEST MODE by the just short-circuiting the test pins 3 and 4 on X35-2120 (A/2).



CIRCUIT DESCRIPTION

2-2. Keys and functions valid

KEY Name	Description	Display
TEST MODE (adjustment)		
PLAY	Focusing servo ..... ON Feed servo ..... ON Tracking servo ..... ON Z servo ..... ON	[PLAY] Lights
PAUSE	Focusing servo ..... ON Feed servo ..... OFF Tracking servo ..... OFF Z servo ..... ON	[PAUSE] Lights
STOP	Stops the revolution of the disc motor. The disc is kept clamped. (If the SIDE B has been played, the pickup is sent to the SIDE A, and the disc motor stops with the SIDE B clamped.)	
SKIP UP	FL → All ON → All OFF → NORMAL ←	Video mute is OFF when FL is OFF.
SKIP DOWN or P-MODE	Changes the mode (inspection) and not open or close the tray. (This operation cannot be performed in the play mode.) CD : TNo.=1 ~ playback, LD : CHAP.=27 ~ playback	
Manual FWD	Feed the pickup to outside in the STOP mode. Track-kicks to outside in the PLAY mode.	
Manual BWD	Feed the pickup to inside in the STOP mode. Track-kicks to inside in the PLAY mode. Feeding of pickup is stopped when the CD start limit switch is turned on. (If pickup is feed continuously from the SIDE B, it stops at the SIDE A.)	
OPEN / CLOSE	OPEN or CLOSE the tray. Change to inspection mode.	
SPACE	The TILT mechanism is turned on and off, each time this key is pushed.	TILT OFF : [SPACE] lights
+10 key or EDIT CD DIRECT	Open the tray without changing the mode.	[TV] lights
1 KEY	Changes the mode (inspection) and not open or close the tray. (This operation cannot be performed in the play mode.) CD : TNo.=1 ~ playback, LD : CHAP.=1 ~ playback	
RANDOM	The Z servo is turned on and off each time this key is pushed.	Z servo OFF : [RANDOM] lights
SIDE A	The pickup feed to the inside of the SIDE A, and the disc does not turn, but the SIDE A is clamped. (This operation cannot be performed, however, while the SIDE A is played.)	
SIDE B	If this key is pushed while the SIDE A is played or stopped, the pickup feed to the inside, and the disc is stopped. (This operation cannot be performed, however, while the SIDE B is played.) After the SIDE A of a 30-cm disc is played, is the SIDE B is turned on, the disc turns and the pickup is feed.	
INSPECTION MODE		
OPEN / CLOSE	OPEN or CLOSE the tray. After CD and LD inspection mode, change normal mode if press Open key.	
1 KEY	Still/Step forward	
2 KEY	Still/Step reverse	
3 KEY	Multi-speed forward	
4 KEY	Multi-speed reverse	
5 KEY	Skip down	
PAUSE	Focusing servo ..... ON Feed servo ..... OFF Tracking servo ..... OFF Z servo ..... ON	[PAUSE] Lights
SKIP DOWN or P-MODE	CD : Direct search to TNo.=1 (SIDE A only), LD : Direct search to CHAP.=27	

- In inspection mode, the keys except the above table works normally.
- The tilt and Z servo mechanism are turned off at 2000 frames only when a 20-cm CAV is used, unlike the set mode (1800 frames).
- Since a forced slider is used for the manual search, the counter may not operate correctly.
- The 10-key works as 10-key only in the frame search mode.

CIRCUIT DESCRIPTION

2-3. How to enter the test mode

(a) Test (Adjustment) mode

Turn on the POWER switch with the wrapping pin shorted to enter the test mode, and the operation stops with the disc clamped.

Note :

1. CHAP. and TRACK of FL light up at the same time.
2. Test can be continued with the wrapping pin shorted.
3. When the device is set in the test mode, it must check for a disc (only to check the type of the disc, CD or LD), and both CD and LD must stop. (If a CD is set, it turns.)
4. The auto digital function must be kept turned on in the test mode.
5. The remote control must work in the test mode.
6. If the "SIDE B" key is pushed while the SIDE A is in PLAY or STOP mode, the pickup is sent to the inside of the side B, and the disc is stopped.
7. If the "STOP" key and "SIDE B" key are pushed in order while the SIDE B is played, the pickup is sent to the inside of the side B, and the disc is stopped.

(b) Inspection mode

Push the SKIP DOWN or P-MODE key in the test (adjustment) mode, or open and close the tray with the OPEN/CLOSE key, and the following is programmed automatically.

Test mode of LD : CHP. No.27→CHP. No.28→CHP. No.29
Test mode of CD : TNo.01→TNo.02

Note

1. CHAP. and TRACK of FL go off at the same time.
2. A pause must not be inserted between programs.
3. All the keys other than the allotted for this operation must operate normally.

2-4. Resetting method of test mode

(a) Adjustment mode

- Push the SKIP DOWN or P-MODE key → Inspection mode (CD or LD)
- Push the OPEN/CLOSE key to open or close the tray → Inspection mode (CD or LD)
- Turn off the POWER switch → Set mode

(b) Inspection mode

- After inspection, open the tray → Set mode
- Turn off the POWER switch → Set mode

CIRCUIT DESCRIPTION

3. Description of Components

3-1. ELECTRIC CIRCUIT UNIT (X25-5410-20)

Ref No.	Name	Use and Functions	Operation
IC1 (1/2)	NJM4565D	Buffer	For AUX input (Lch) signal
IC1 (2/2)	NJM4565D	Inverting amp	For FM audio input (Lch) signal
IC2 (1/2)	NJM4565D	Inverting amp	For FM audio input (Rch) signal
IC2 (2/2)	NJM4565D	Buffer	For AUX input (Rch) signal
IC3	TC4053BP XRU4053B	Analog multiplexer	Control to audio output of main mic • Selected to STEREO (Lch) signal or MPX (mix) signal • Selected to FM audio input (Lch) signal or AUX input (Lch) signal
IC4	TC4053BP, XRU4053B	Analog multiplexer	• Selected to main mic audio or Echo generation mic audio • Selected to STEREO (Rch) signal or MPX (mix) signal • Selected to FM audio input (Rch) signal or AUX input (Rch) signal
IC5 (1/2)	NJM4565D	Buffer	For MPX (Lch) signal
IC5 (2/2)	NJM4565D	Buffer	For MPX (Rch) signal
IC6 (1/2)	NJM4565D	Buffer	For MPX (mix) signal
IC7	TC4053BP XRU4053B	Analog multiplexer	Lch mute control at HiFi MPX • Selection of mixing of MPX (Lch) signal and MPX (Rch) signal • Selection of the maximum level of MPX (Rch)
IC8 (1/2)	NJM4565D	Pre-emphasis amp	For analog audio (Lch) signal
IC8 (2/2)	NJM4565D	Pre-emphasis amp	For analog audio (Rch) signal
IC9	NJM4565D	LPF	For analog audio (Lch) signal
IC10	NJM4565D	LPF	For analog audio (Rch) signal
IC11 (1/2)	NJM4565D	Amp	Pre-emphasis amp for mic audio signal
IC11 (2/2)	NJM4565D	LPF	For mic audio signal
IC12	YSS205-F	DSP	• KEY CON, • MAGIC VOICE, • HIT MASTER, • SURROUND, • ECHO
IC13	TC51832ASP-10	Simulated S-RAM	For YSS205-F
IC14 (1/2)	NJM4565D	Comparator	Comparator to detect the condition of the mic change-over switch
IC14 (2/2)	NJM4565D	Comparator	Detected to Normal mode
IC15 (1/2)	NJM4565D	Amp	Not inverted amp for Vocal mode (400Hz)
IC15 (2/2)	NJM4565D	Simulated inductor	For Vocal mode (400Hz)
IC16 (1/2)	NJM4565D	Amp	Not inverted amp for Vocal mode (1.6kHz)
IC16 (2/2)	NJM4565D	Simulated inductor	For Vocal mode (1.6kHz)
IC17 (1/2)	NJM4565D	Amp	Not inverted amp for Vocal mode (3.2kHz)
IC17 (2/2)	NJM4565D	Simulated inductor	For Vocal mode (3.2kHz)
IC18	TC4052BP, XRU4052B	Analog multiplexer	Selected to Vocal mode
IC19	TC4066BP, XRU4066B	Switch	Key signal control (+, –) for mic
IC20	TA8409S	Motor driver	For VR
IC21	NJM4565D	Voice detection	
IC51 (1/2)	NJM4565D	Not inverted amp	Input to MIC1
IC51 (2/2)	NJM4565D	Not inverted amp	Input to MIC2
IC52 (1/2)	NJM4565D	Inverted amp	MIC1 and MIC2 addition
IC52 (2/2)	NJM4565D	Buffer	For mic echo level signal
IC301	μPD75238GJ-088	Sub μ-com	Control to display section, Karaoke section, and main μ-com
IC302	MN1381-R (TA)	Reset IC	Reset to sub μ-com
IC303	TC74HC04AP	Inverter	Driver for Key-con LED
IC401	NJM4580D	Not inverted amp	For headphone (Lch : 1/2, Rch : 2/2)
Q1 – Q3	DTC124ES, UN4212	Switch	Turning on/off pre-emphasis
Q51	DTA124ES, UN4112	Inverter	Control Tr for mic audio mute
Q52	2SD1302 (S, T)	Mute	For mic audio
Q91	DTC124ES, UN4212	Level shift inverter	For IC21 (2/2) output
Q101,	2SC2458 (Y, GR), 2SC3311A (Q, R)	Inverter	Detected to Lesson return
Q102	DTC124ES, UN4212		

CIRCUIT DESCRIPTION

Ref No.	Name	Use and Functions	Operation
Q103	DTC124ES, UN4212	Inverter	For IC14 (1/2) output
Q301 ~ Q303, Q310	DTC144TFF	Buffer	Driver for grid
Q311	2SC2458 (Y, GR), 2SC3311A (O, R)	Driver	For display "♮" LED
D1 ~ D6	HSS104, 1SS133	Voltage limiter	Protection of DSP with A/D mechanism circuit
D91	HZS5.1N (B2), RD5.1ES (B2)	Voltage limiter	
D92	HSS104, 1SS133	Rectification	Prevention of inverse current
D103, D104	HSS104, 1SS133	Logic circuit	OR logic for "♭"and "♯"
D213 ~ D216	HSS104, 1SS133	Logic circuit	OR logic to detected circuit of Normal mode
D221, D222 D401, D402	HSS104, 1SS133	For protection from static electricity and line noise	
D301~D303, D312, D322~D328	HSS104, 1SS133	Prevention of inverse current	For sub μ-com control signal
D304~D307	B30-1080-05	LED	For "♯" display : D304 and D305, "♭" display : D306, and D307
D308	B30-1288-05	LED	For "♮" display
D309 ~ D311	HSS104, 1SS133	Logic circuit	For key condition display circuit
D313	B30-1290-05	LED	Light : on "STEREO"
D314	B30-1290-05	LED	ON : "MPX" and "Hi-Fi MPX"
D315, D316	B30-1290-05	LED	ON : "ECHO MODE2" (D315), "ECHO MODE1" (D316)
D317	B30-1290-05	LED	ON : "MEMORY MODE"
D318, D319	B30-1290-05	LED	ON : "VOCAL MODE2" (D318), "VOCAL MODE1" (D319)
D320	B30-1290-05	LED	ON : "POWER ON/STAND BY" (when connected to AC plug)
D329	B30-1290-05	LED	ON : "SURROUND"
D330	B30-1288-05	LED	For "♮" display

3-2. CONTROL CIRCUIT UNIT (X29-24XX-XX) 50-20 : M, 51-02 : P

Ref No.	Name	Use and Functions	Operation
IC1	NJM4565D	+5V stabilized power supply	For voltage control
IC2	STA455C	Disc motor driver	
IC3	NJM2903D	Comparator for PWM conversion	Compare to disc error signal with reference triangular wave
IC4 (1/2)	NJM4565D	Difference amp	Detects the current flowing in the motor to generate a motor error
IC4 (2/2)	NJM4565D	Inverter	Generates the reference triangular wave for reversing the disc motor Inverts the triangular wave on the forward side on the basis of 0V
IC5	TC74HC04AP	Inverter amp	Inverters (1) ~ (7) are for oscillation of the reference triangular wave for PWM conversion for the disc motor Inverters (8) ~ (13) are for oscillation of the clock (EXT. CLK) for IC12 (HA11529)
IC10 (1/2)	NJM4565D	Inverter amp for FG	Shapes the output of the photo-interrupter for FG
IC10 (2/2)	NJM4565D	Inverter amp for tracking count	Shapes so that number of signals crossing the track by using the tracking error signal
IC11	CXA1571S	RF amp	• APC circuit, • Focus error amp, • Tracking error amp, • 4D amp (RF summing amp)
IC12 (1/2)	NJM4565D	Error amp	Generates a TILT error from the difference of sensor output for the TILT servo
IC12 (2/2)	NJM4565D	Comparator for disc sens	Compares the added signal of the tilt sensor output with a certain level, then makes signals to judge existence of a disc
IC13 (1/2)	TA8410AK	Power op-amp	Drive to motor for Z servo
IC13 (2/2)	TA8410AK	Power op-amp	Drive to motor for TILT servo
IC14 (1/2)	TA8410AK	Power op-amp	Current drive to focus actuator (with heat sink)
IC14 (2/2)	TA8410AK	Power op-amp	Current drive to tracking actuator (with heat sink)

CIRCUIT DESCRIPTION

Ref No.	Name	Use and Functions	Operation
IC15 (1/2)	TA8410AK	Power op-amp	For driving the motors to open/close the tray, and clamp and unclamp the disc
IC15 (2/2)	TA8410AK	Power op-amp	For driving the motor for the feed servo and one for moving the pickup ass'y across side A and side B
IC16 (1/2)	NJM4565D	Buffer amp	Conversion of impedance performed when the brake pulses for the tracking servo are added
IC16 (2/2)	NJM4565D	Subtractor for stop signal	Remove the brake pulses from the tracking error signals of the stopper mode of the slider feeder
IC17 (1/2)	NJM4565D	Buffer amp	Conversion of impedance of the tracking error signal
IC17 (2/2)	NJM4565D	Buffer amp	Conversion of impedance of the focus error signal
IC18	NJM4565D	Window comparator	Compares the tracking error signal for the stopper mode of the slider feeder with a certain level Stopper pulses are output when the signal on both (+) side and (–) side are higher than a certain level
IC19 (1/2)	NJM4565D	4D phase compensation amp	For frequency correction and phase compensation of the 4D signals
IC19 (2/2)	NJM4565D	Positive phase amp	Shapes the detected signals
IC20	HA11529	FTS servo control	• Focus servo, • Tracking servo, • Slider servo, • TILT servo
IC21 (1/2)	NJM4565D	Phase compensation amp	Compensates the phase of the focus drive signal and generates error signals for Z servo
IC21 (2/2)	NJM4565D	Inverter amp	For 4D signal
IC22	NJM2903D	Comparator for Z servo	Compares the input Z servo error signal with a certain voltage, and converts it into the voltage of ±5 V for driving the motor
Q1	2SA1534A (R, S)	–30V stabilized power supply	Control for FL
Q2	2SC2003 (L, K)	+8V ripple filter	
Q3, Q4	2SD1302 (S, T)	Switch	Bilateral switch of FL filament
Q5	DTA124ES, UN4112	Switch	Control switch of FL filament
Q6	DTC124ES, UN4212	Switch	Control switch for ±5V on/off
Q7	2SD2374	+5V stabilized power supply	Control for µ-com
Q8	2SA954 (L, K)	–8V ripple filter	
Q9, Q10	2SA1048 (Y, GR)	Disc motor pre-driver	Control for Disc motor pre-driver
Q11	2SA1309A (Q, R)	Constant-current	Stabilized power supply for charging and discharging the triangular wave for PWM conversion of disc motor
Q12	2SC3246	Switch	Generation of triangular wave for PWM of disc motor
Q13	2SD2374	Voltage control	For –5V stabilized power supply
Q14	2SB1548	Voltage control	For +5V stabilized power supply
Q15	DTC124ES, UN4212	Switch	Switch and control to turn on/off into ±13V
Q16, Q17	DTA124ES, UN4112	Switch	Switch and control to turn on/off into ±13V
Q18	2SB1548	Switch	Switch and control to turn on/off into ±13V
Q19	2SD2374	Switch	Switch and control to turn on/off into ±13V
Q20	DTC124ES, UN4212	Switch	Switch and control to turn on/off into ±13V
Q21	2SK163 (L, M)	Switch	Disc motor servo change-over switch
Q50	2SA954 (L, K)	Buffer	For laser diode drive
Q51	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	Impedance change to RF signal
Q52	DTA124ES, UN4112	Switch	Controls to TILT servo gain down switch
Q53	DTC124ES, UN4212	Switch	Controls to circuit when power is turn on/off, to prevent actuator from operating abnormally
Q54	DTA124ES, UN4112	Switch	Controls to feed servo gain change circuit
Q55	2SK163 (L, M)	Switch	Feed servo gain change-over switch
Q56	2SK163 (L, M)	Switch	Lowers the focus gain when power is turn on/off, to prevent actuator from operating abnormally
Q59	DTC124ES, UN4212	Switch	Controls to tray open
Q60	DTA124ES, UN4112	Switch	Controls to tray open

CIRCUIT DESCRIPTION

Ref No.	Name	Use and Functions	Operation
Q61	DTA124ES, UN4112	Switch	Controls to tray close
Q62	DTC124ES, UN4212	Switch	Focus offset change-over switch which controls the reference voltage for the Z servo
Q63	DTA124ES, UN4112	Switch	Focus offset change-over switch which controls the reference voltage for the Z servo
Q70	2SK163 (L, M)	Switch	Holds a sample of tracking error signals by using the flaw detecting signals in the defect circuit
Q71	DTC124ES, UN4212	Switch	Turns on/off the stopper mode during the slider feed control
Q72	DTC124ES, UN4212	Switch	Turns on/off the function to generate tracking brake pulses from the sum signal
Q73	DTA124ES, UN4112	Switch	Defect circuit on/off switch
Q74	DTA124ES, UN4112	Switch	Z servo on/off switch
Q75	2SK163 (L, M)	Switch	TILT servo gain change-over switch
Q76	2SK163 (L, M)	Switch	Holds a sample of focus error signals by using the flaw detecting signals in the defect circuit
D1	D3SBA20F03	Diode bridge	Bridge rectification for ±13V power supply
D2	D3SBA20F03	Diode bridge	Bridge rectification for ±5V, ±8V power supply
D5, D10	HSS104, 1SS133	For protection from static electricity	
D7 ~ D9	S5688B, 1SR139-100	FL -30V	
D11	HZS5.6N (B2), RD5.6ES (B2)	Voltage shift	Generates the voltage to give a bias to the AC voltage of the FL filament
D12	HZS30N (B2), RD30ES (B2)	For reference voltage	Generates the reference voltage for the -30V constant-voltage circuit for FL
D13	HSS104, 1SS133	For protection from inverse current	
D14	HZS5.6N (B2), RD5.6ES (B2)	For reference voltage	Generates the reference voltage for the +5V constant-voltage circuit for μ-com
D15	HZS5.1N (B2), RD5.1ES (B2)	For reference voltage	Generates the reference voltage for the ±5V tracking power for μ-com
D16	HZS5.1N (B2), RD5.1ES (B2)	Voltage shift	For control voltage shift to +5V constant voltage power supply
D17	HZS5.1N (B2), RD5.1ES (B2)	Voltage shift	For control voltage shift to -5V constant voltage power supply
D18 ~ D21	ERA081-004	Prevention of counter electromotive force	Prevention of counter electromotive force in the smoothing coil and motor when the PWM is driven
D22	HSS104, 1SS133	Compensation for constant-current	Lowers the control voltage of the constant-current power supply
D23	HSS104, 1SS133	Compensation for driver	Compensation for secure operation of the triangular wave generating driver
D24, D25	S5688B, 1SR139-100	Rectification diode	Rectification diode for μ-com (+5V)
D26, D27	HSS104, 1SS133	For protection from static electricity	
D51	HSS104, 1SS133	For protection from inverse current	Diode used to prevent the 5 V for control of the μ-com of the down-limit switch for the Z servo from being applied to the drive side
D53	HSS104, 1SS133	Voltage conversion	Adjusts the comparator output for sensing a disc to 0V to set the voltage for the μ-com to 0V when the latter is negative
D54	HZS6.8N (B2), RD6.8ES (B2)	Control voltage shift	This circuit changes the focus offset voltage for side A and side B, and generates the transistor switch control voltage when the voltage is changed
D56	HSS104, 1SS133	Switch	Turns on and off the feed servo gain change-over circuit
D57	HSS104, 1SS133	For protection from inverse current	If the feed servo gain is low, it is adjusted low only when the slide moves inward
D58, D59	S5688B, 1SR139-100	Voltage shift	For adjustment of the feed motor voltage
D60	HSS104, 1SS133	Detection wave	For detection of envelope of the 4D signal
D61 ~ D64	HSS104, 1SS133	OR circuit	OR circuit for the error voltage of Z servo and μ-com control voltage
D65	HSS104, 1SS133	Switch	Turns on/off the TILT servo gain change-over circuit

CIRCUIT DESCRIPTION

3-3. VIDEO CIRCUIT UNIT (X35-2120-20)

Ref No.	Name	Use and Functions	Operation
IC1	TC74HC00AP	Shaping of EFM wave form Change-over LD, CD, EFM Asymmetry circuit	Shapes the digital sound wave form, and changes the wave forms of LD, CD, and EFM with the asymmetry and μ-com control command (A/$\overline{V}$) Then, transfers the signals only when focus is locked by the control command ($\overline{FOK}$)
IC2 (1/2)	NJM4565D	DC detecting amp	For control of DC elements, takes difference between input and output of IC1 3/4 (For asymmetry)
IC3	CA0002AM	FM audio demodulation	• Detector, • Drop-out detection and correction, • CX-NR decoding, • Mute • Change-over of L/R
IC4	CXD2500BQ	Digital signal processing	• Relay of bit clock, • Demodulation of EFM data, • Demodulation of sub code • Protection of EFM frame and sync signal, • Error correction, • Control of disc servo
IC5 (1/2)	NJM4565D	L.P.F. for disc motor servo	Filtrates the phase comparison output from the signal processor
IC5 (2/2)	NJM4565D	L.P.F.	L.P.F. and amplification of VCXO control signal
IC6	SM5872BS	Digital filter and DAC	Σ/Δ type 2 channels D/A converter, built-in digital filter (8fs)
IC7 (1/2)	NJM4565D	Lch difference amp (Digital)	Filtrates and replay PWM outputs of IC6 through differential circuit
IC7 (2/2)	NJM4565D	Lch L.P.F. (Digital)	Filtrates replayed audio signals
IC8 (1/2)	NJM4565D	Rch L.P.F. (Digital)	Filtrates replayed audio signals
IC8 (2/2)	NJM4565D	Rch difference amp (Digital)	Filtrates and replay PWM outputs of IC6 through differential circuit
IC9 (1/2)	NJM4565D	Lch buffer	For audio output from analog switch
IC9 (2/2)	NJM4565D	Lch mixing amp	For replay audio signal and mic audio signal
IC10 (1/2)	NJM4565D	Rch buffer	For audio output from analog switch
IC10 (2/2)	NJM4565D	Rch mixing amp	For replay audio signal and mic audio signal
IC11	M37451M8-329SP	Main μ-com	Controls main functions of mechanical control etc.
IC12	TC4053BP	Switch	Change-over to analog audio and digital audio
IC13	TC4053BP XRU4053B	Switch	For changing the input from the 24-bit code and Q code to the main μ-com (4P) For changing the input from the HALF OPEN and FULL OPEN switches to the main μ-com (15P) For changing the input from the UNCLPSSW, ACLPSW, and BCLPSW to the main μ-com (12P, 13P)
IC51	TC74HCU04AP	Amp	For RF signal
IC52	YM3558	Video signal processor	Processing RF signal into video signal
IC53	TC74HC157AP	Switch	Change-over to control signal from main μ-com and sub μ-com
IC54	TC74HCU04AP	Amp, Buffer, Oscillating	• Amplifies sub carrier, • Buffer for synchronizing signal, • VCO for TBC
IC55	TC74HC4066AP	Switch	Controles to sample hold of sub carrier
IC56	NJM4565D	Amp	Phase compensation amp for PLL
IC57	NJM4565D	Buffer	For sample hold of sub carrier
IC58	NJM4565D	Buffer	For color TBC signal
IC59	TC4053BP, XRU4053B	Switch	For changing the servo characteristics for 30cm, 20cm, LD, CDV, and CD
IC60	NJM4565D	Amp	Control of inversion and no-inversion modes of the disc motor servo Amplification of change-over signal of the characteristics of the disc motor servo
IC61	NJM4565D	Amp	Phase compensation amp for disc motor servo
IC62	YVL151C	Signal processor	• Drop-out correction of video signals, • Digital TBC, • Generate reference signal • D/A conversion, • Disc servo, • Noise reduction, • 24-bit code separation
IC63	MC141621	Signal processor	• A/D conversion, • Logical Y/C separation, • D/A conversion of video signals
Q1	2SC1923 (R, O)	Amp for RF signal	Amplifies the filtered LD - RF signals
Q2	2SC2458 (Y, GR) 2SC3311A (Q, R)	Amp for RF signal	Amplifies the filtered LD - RF signals
Q3	2SC2458 (Y, GR) 2SC3311A (Q, R)	For CD-RF signals	Phase compensation and amplification of CD-RF signals
Q4	2SA1048 (Y, GR) 2SA1309A (Q, R)	For CD-RF signals	Phase compensation and amplification of CD-RF signals
Q5	2SC2458 (Y, GR) 2SC3311A (Q, R)	For CD-RF signals	Phase compensation and amplification of CD-RF signals

CIRCUIT DESCRIPTION

Ref No.	Name	Use and Functions	Operation
Q6 ~ Q8	2SC2458 (Y, GR) 2SC3311A (Q, R)	For LD-RF signals	Phase compensation and amplification of LD-RF signals
Q9	DTC124ES, UN4212	For RF signals	Inverts the control signal (A/$\overline{V}$) for change-over LD-RF and CD-RF
Q13	DTA124ES, UN4112	CLOCK SW	Change-over SQCK input of signal processing by command of main μ-com (CLKSW)
Q15	DTA124ES, UN4112	For changing oscillation	Change-over fixed oscillation by control signal (A/$\overline{V}$) of μ-com Q15 (inverted to A/$\overline{V}$), Q16 (CD : OFF, LD : ON)
Q16	2SC2458 (Y, GR) 2SC3311A (Q, R)		
Q17	DTC124ES, UN4212	EFM signal muting	Muting EFM signal : Focus OFF
Q21	DTA124ES, UN4112	For muting signal	Generates the muting output signal with μ-com (MUTE and D/$\overline{A}$) and muting signal of DAC
Q22	2SC2458 (Y, GR) 2SC3311A (Q, R)	CLOCK inverter	Inverts the clock signal (SCLK) from μ-com
Q23 ~ Q28	2SC2878 (B)	Tr for muting	MUTE : ON
Q29	2SC2458 (Y, GR) 2SC3311A (Q, R)	+5V stabilized power supply	Maintain the emitter of transistor Q21 for mute signals at +5 V
Q30	DTC124ES, UN4212	Clamp switch inverter	Inverts ACLPSW and controls the analog switch IC13
Q31	DTC124ES, UN4212	For DAC reset	
Q51	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	Sub carrier buffer
Q52	2SC2458 (Y, GR) 2SC3311A (Q, R)	Switch	Disc motor stopped : ON
Q53	DTA124ES, UN4112	Switch	Disc motor stopped : ON
Q54	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	Video signal buffer for separation of synchronization
Q55	2SC2458 (Y, GR) 2SC3311A (Q, R)	Amp	Amplification of separates synchronizing
Q56	2SA1048 (Y, GR) 2SA1309A (Q, R)	Amp	Amplification of separates synchronizing
Q57	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	For video signal
Q58	HSS104, 1SS133	Disc servo phase compensation change-over switch	Changes phase compensation constant in CDV mode
Q59	2SA1048 (Y, GR) 2SA1309A (Q, R)	Constant voltage	Power supply –0.6V to Vss of IC52
Q60	DTC124ES, UN4212	Switch	Change-over MTF correction of RF signal
Q61~Q63	2SC1923 (R, O)	Amp	Amplification MTF correction of RF signal
Q65, Q66	2SC1923 (R, O)	Amp	Amplification and de-emphasis for video signal
Q67	2SC2458 (Y, GR) 2SC3311A (Q, R)	Amp	Amplification and de-emphasis for video signal
Q68	2SC2458 (Y, GR) 2SC3311A (Q, R)	Switch	Clamp switch of video signal
Q69	2SA1048 (Y, GR) 2SA1309A (Q, R)	Amp	Amplifier for color TBC
Q70, Q71	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Video signal buffer
Q72, Q73	2SC1923 (R, O)	Amp	Limiter amp for RF signal
Q74	2SA1048 (Y, GR), 2SA1309A (Q, R)	Switch	Change-over to convert and invert of disc motor
Q75	2SA163 (L, M)		
Q76	DTA124ES, UN4212	Disc servo phase compensation change-over switch	Changes phase compensation constant in CDV mode
Q81, Q82	2SC1923 (R, O)	Amp	Difference amplifier for video signal
Q83	2SC2458 (Y, GR) 2SC3311A (Q, R)	Amp	Difference amplifier for video signal

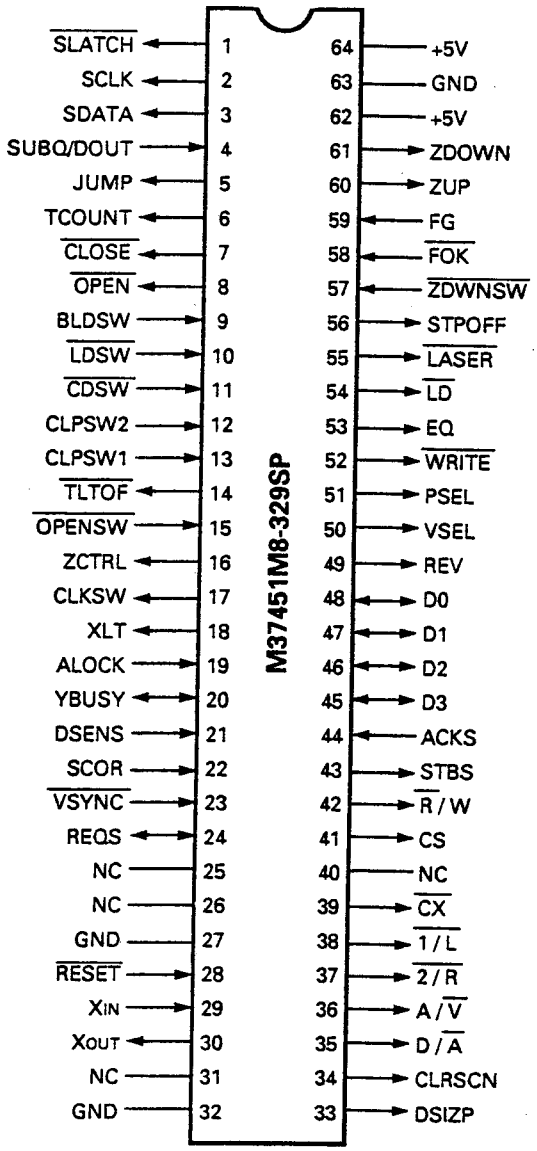
CIRCUIT DESCRIPTION

Ref No.	Name	Use and Functions	Operation
Q84	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Clamp buffer for video signal
Q85	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	Brightness signal buffer
Q86	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	Chroma signal buffer
Q87	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Brightness signal filter buffer
Q88	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Chroma signal filter buffer
Q89, Q91	2SC1923 (R, O)	Amp	Amplification brightness signal
Q90, Q92	2SC1923 (R, O)	Amp	Amplification chroma signal
Q93	2SC2458 (Y, GR) 2SC3311A (Q, R)	Amp	Amplification brightness signal
Q94	2SC2458 (Y, GR) 2SC3311A (Q, R)	Amp	Amplification chroma signal
Q95	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Clamp buffer for brightness signal
Q96	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Buffer amp for output of brightness signal
Q97, Q98	2SC2003 (L, K)	Buffer	Buffer amp for output of brightness signal
Q99	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	Buffer amp for output of chroma signal
Q100	2SA1048 (Y, GR) 2SA1309A (Q, R)	Buffer	Buffer amp for output of video signal
Q101, Q102	2SC2003 (L, K)	Buffer	Buffer amp for output of video signal
Q103	2SC1923 (R, O)	Amp	Amplification AUX input signal
Q104	2SC2458 (Y, GR) 2SC3311A (Q, R)	Buffer	AUX input signal buffer
D1	HSS104, 1SS133	Set limits to wave form	Limits the input of the asymmetry circuit of the LD EFM signals in the CD play mode
D6	1SV101	Variable capacitor	Variable capacitor diode for VCXO control
D13	HZS5.6N (B2), RD5.6ES (B2)	For constant voltage	Maintain the emitter of transistor Q21 for mute signals at +5 V
D51	1SV147	Variable capacitor	Variable capacitor diode for VCO
D52, D53	HSS104, 1SS133	For constant voltage	Power supply –1.2V to base of Q59
D54	HSS104, 1SS133	For constant voltage	Constant current operation
D55	HSS104, 1SS133	Switch	Limits –0.6V to collector of Q68
D56	KV1230Z	Variable capacitor	Variable capacitor diode for color TBC
D57	HSS104, 1SS133	Switch	Clamp to video signal of base (Q65)
D60	HSS104, 1SS133	Constant voltage	Level shift for video signal
D61	HSS104, 1SS133	Switch	Clamp for video signal
D63	HSS104, 1SS133	Switch	Clamp of brightness signal
D65, D66	HSS104, 1SS133	Switch	For protection from static electricity

CIRCUIT DESCRIPTION

4. Main μ-com : M37451M8-329SP (X35-, IC11)

4-1. Pin connection



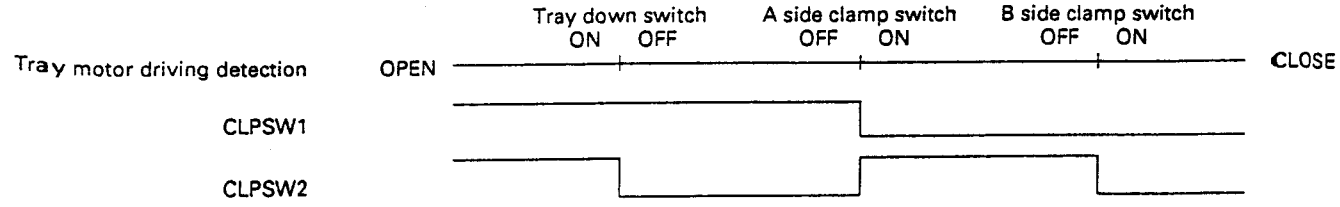
4-2. Pin connection

Ref No.	Name	I/O	Function
1	SLATCH	O	Latch output pin to FTS IC
2	SCLK	O	Clock output pin to FTS/CD IC
3	SDATA	O	Data output pin to FTS/CD IC
4	SUBQ/DOUT	I	Q data input pin
5	JUMP	O	Pulse output pin for one track-jump
6	TCOUNT	O	Event counter pin for TCOUNT
7	CLOSE	O	Tray motor control (L : Toward CLOSE)
8	OPEN	O	Tray motor control (L : Toward OPEN)
9	BLDSW	I	H : B side LD switch ON
10	LDSW	I	L : LD switch ON
11	CDSW	I	L : CD switch ON
12	CLPSW2	I	The logic of the inputs of the side A clamp switch, side B clamp switch, and tray-down switch is controlled with two ports* (Note on next page)
13	CLPSW1	I	
14	TLTOF	O	TILT servo gain control (L : Gain down)
15	OPENSW	I	L : Open switch ON

CIRCUIT DESCRIPTION

Ref No.	Name	I/O	Function
16	ZCTRL	O	Z servo ON/OFF (H : Servo ON)
17	CLKSW	O	SCLK change pin (H : CD IC, L : LD IC)
18	XLT	O	Latch output pin to CD IC
19	ALOCK	I	Frame sync lock detection pin (H : Lock)
20	YBUSY	I/O	High level when communicating between main and sub μ-com
21	DSENS	I	Disc detection signal input (H : with disc)
22	SCOR	I	Q data sync signal interruption pin
23	$\overline{\text{VSYNC}}$	I	Video vertical sync signal interruption pin
24	REQS	I/O	Request pin for communicating between main and sub μ-com
27	GND	–	GND
28	$\overline{\text{RESET}}$	I	Reset pin
29	XIN	I	Clock oscillator input (10MHz)
30	XOUT	O	Clock oscillator output (10MHz)
32	Vss	–	GND
33	DSIZP	O	L : 20cm disc
34	CLRSCN	O	H : PLAY mode (with multi speed x 1)
35	D/$\overline{\text{A}}$	O	H : Digital, L : Analog
36	A/$\overline{\text{V}}$	O	H : Audio, L : Video
37	$\overline{\text{2/R}}$	O	Stereo output : 0 / L-ch output : 0 / R-ch output : 1 / Mute ON : 1
38	$\overline{\text{1/L}}$	O	Stereo output : 0 / L-ch output : 1 / R-ch output : 0 / Mute ON : 1
39	$\overline{\text{CX}}$	O	L : CX mode ON
41	CS	O	Chip selection for YVL151C
42	R/$\overline{\text{W}}$	O	Read/Write signal for YVL151C
43	STBS	O	STBS output pin (to sub μ-com)
44	ACKS	I	ACKS input pin (from sub μ-com)
45 ~ 48	D3 ~ D0	I/O	Data bus for communicating between main and sub μ-com
49	REV	O	Disc rotating direction setting pin (L : A side, H : B side)
50	VSEL	O	Video signal output mode (H: run through field memory)
51	PSEL	O	Low level when sub μ-com transmits the data to YVL151C
52	$\overline{\text{WRITE}}$	O	Field memory writing control (L : writing permission)
53	EQ	O	L : CAV with frame No. more than 8000
54	$\overline{\text{LD}}$	O	L : LD
55	$\overline{\text{LASER}}$	O	Laser ON/OFF port (L : ON)
56	STPOFF	O	H : PLAY mode (with multi speed x 1)
57	$\overline{\text{ZDWNSW}}$	I	Z servo down limit switch (L : ON)
58	$\overline{\text{FOK}}$	I	L : Focus ON
59	FG	I	FG input pin of disc motor (24 pulses per turn)
60	ZUP	O	Z motor control (H : UP)
61	ZDOWN	O	Z motor control (H : DOWN)
62	VREF	–	Power supply (+5V)
63	AVss	–	GND
64	Vcc	–	Power supply (+5V)

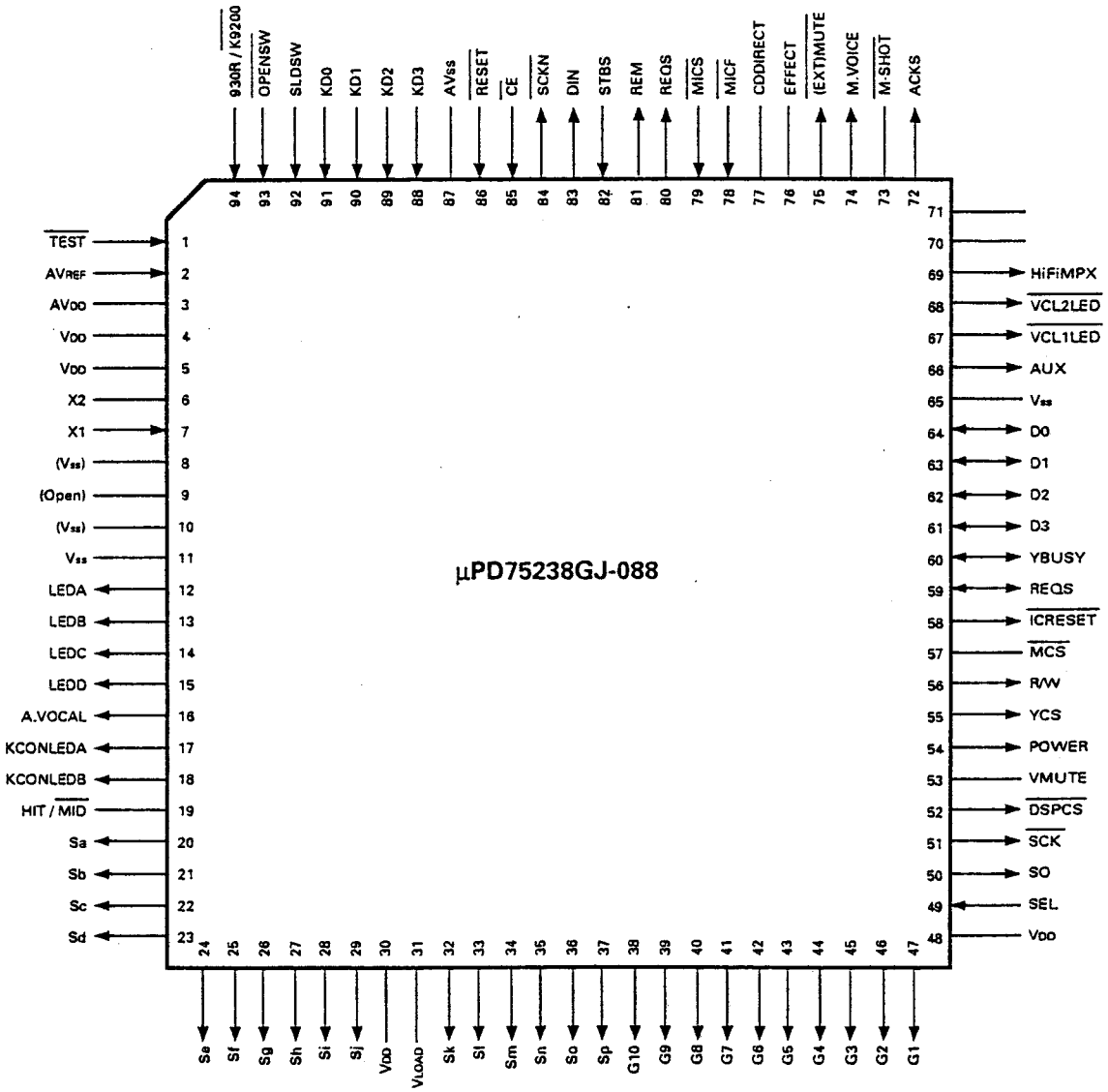
*** Note to CLPSW1 and CLPSW2**



CIRCUIT DESCRIPTION

5. Sub μ-com : μPD75238GJ-088 (X25-, IC301)

5-1. Pin connection



5-2. Key matrix

μ-com Pin	No.	91 KD0	90 KD1	89 KD2	88 KD3
20	Sa	ASSIST VOCAL	HIT MASTER	KEY CONTROL #	KEY CONTROL ♮
21	Sb	KEY CONTROL ♭	MAGIC VOICE	AUDIO MODE	ECHO MODE
22	Sc	MEMO MODE	VOCAL MODE	REQUEST/P.MODE	10
23	Sd	11	12	13	14
24	Se	15	16	17	18
25	Sf	19	20	▶/‖	SURROUND
28	Si	■	⏮	⏏	⏭
29	Sj	8	9	DISC SIDE B	DISC SIDE A
32	Sk	7	6	5	4
33	Sl	POWER			
34	Sm	AUTO PAUSE	1	2	3

5-3. A/D port

Pin No.		Pin name	
1	AN0	TEST	0 ~ 2.5V : TEST 2.5V ~ 5V : NORMAL
94	AN1	930R / K9200	0 ~ 2.5V : K9200 2.5V ~ 5V : 930R
93	AN2	DOOR OPEN SW	0 ~ 2.5V : OPEN 2.5V ~ 5V : CLOSE
92	AN3	SLIDE SW	0 ~ 0.5V : NORMAL, 0.5V — 2V KARAOKE, 2V ~ 5V : AUX

CIRCUIT DESCRIPTION

5-4. Pin function

No.	Name	I/O device	I/O	Function
1	TEST	Open	I	L : Test mode
2	AVREF	–	I	A/D reference voltage +5V (5.6V)
3	AVDD	–	–	A/D power supply +5V
4, 5	VDD	–	–	+5V
6	X2	–	–	6.0MHz
7	X1	–	I	6.0MHz
11	Vss	–	–	GND
12	LEDA	LED	O	ECHO mode 1 LED, 2 LED
13	LEDB			MEMORY mode LED
14	LEDC			STEREO LED2 LED
15	LEDD			MPX LED, SURROUND LED
16	A.VOCAL	Open	O	A.VOCAL signal (ON : H)
17	KCONLEDA	LED	O	KEYCON LED, FLAT LED
18	KCONLEDB	LED		NATURAL LED, SHARP LED
19	HIT / MID	Open	–	Open
20~29	Sa ~ Sj	FL	O	Display segment output
30	VDD	–	–	+5V
31	VLOAD	–	–	FL power supply
32~37	Sk ~ Sp	FL	O	FL segment output
38~47	G10 ~ G1	FL	O	FL timing output
48	VDD	–	–	+5V
49	SEL	MECHA MI	I	YVL151C BUSY (H : BUSY)
50	SO	YSS205-F	O	Serial data output
51	SCK	YSS205-F	O	Serial clock output
52	DSPCS	YSS205-F	O	Latch output to IC (YSS205-F)
53	VMUTE	Open	–	Open
54	POWER	RELAY	O	Relay driving output (H : ON)
55	YCS	YVL151C	O	YVL151C latch output
56	R / W	YVL151C	O	YVL151C write signal
57	MCS	Open	–	Open

No.	Name	I/O device	I/O	Function
58	ICRESET	Other IC	O	Other IC reset signal (L : Reset)
59	REQS	MECHA MI	I/O	Communication sync signal
60	YBUSY	YVL151C	I/O	YVL151C busy signal
61~64	D3~D0	MECHA MI	I/O	Communication data bus
65	Vss		–	GND
66	AUX	–	O	External state signal (H : AUX)
67	VCL1LED	LED	O	Vocal mode 1 LED (L : ON)
68	VCL2LED	LED	O	Vocal mode 2 LED (L : ON)
69	HiFiMPX	–	O	Hi-Fi MPX signal (H : ON)
72	ACKS	MECHA MI	O	Communication sync signal
73	M-SHOT	LED	–	Open
74	M.VOICE	–	O	H : M.VOICE signal ON
75	(EXT)MUTE	EXTMUTE	O	L : Audio mute
76	EFFECT	Open	–	Open
77	CDDIRECT	Open	–	Open
78	MICF	MIC	I	Mic input
				ONCE L / SHP L / FLT H
79	MICS		I	L / H / L
80	REQS	MECHA MI	O	Communication sync signal
81	REM	REMOCON.	I	Remote control signal input
82	STBS	MECHA MI	I	Communication sync signal
83	DIN	YVL151C	O	YVL151C data signal
84	SCKN	YVL151C	O	YVL151C clock signal
85	CE	POWER SOURCE	I	Backup detection (L : Backup)
86	RESET	–	I	µ-com reset
87	AVss	–	–	Vss
88~91	KD3~KD0	KEY	I	Key scan data return port
92	SLDSW	Slide SW	I	Slide switch state
93	OPENSW	Door open SW	I	L : Open
94	930R/K9200	Open	I	930R : H, K9200 : L

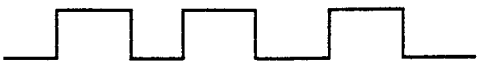
5-5. LED lighting logic for ECHO mode, MEMORY mode, STEREO, MPX, SURROUND

POWER OFF (ALL OFF)

LED A, LED B, LED C, LED D = H
or
LED A, LED B, LED C, LED D = L

POWER ON

• LED D



• LED A

LED D	SURROUND : ON MEMORY : ON	SURROUND : ON MEMORY : OFF	SURROUND : OFF MEMORY : ON	SURROUND : OFF MEMORY : OFF
H	L	H	L	H
L	H	H	L	L

• LED B

LED D	ECHO mode 1 : ON ECHO mode 2 : OFF	ECHO mode 1 : OFF ECHO mode 2 : ON	ECHO mode 1 : OFF ECHO mode 2 : OFF
H	H	L	H
L	H	L	L

• LED C

LED D	STEREO : ON MPX : OFF	STEREO : OFF MPX : ON	STEREO : OFF MPX : OFF
H	H	L	H
L	H	L	L

Key control lighting logic

	OFF	NATURAL	SHARP	FLAT
KCONLEDA	H	L	H	L
KCONLEDB	H	L	L	H

CIRCUIT DESCRIPTION

6. Z Servo (X29-2450)

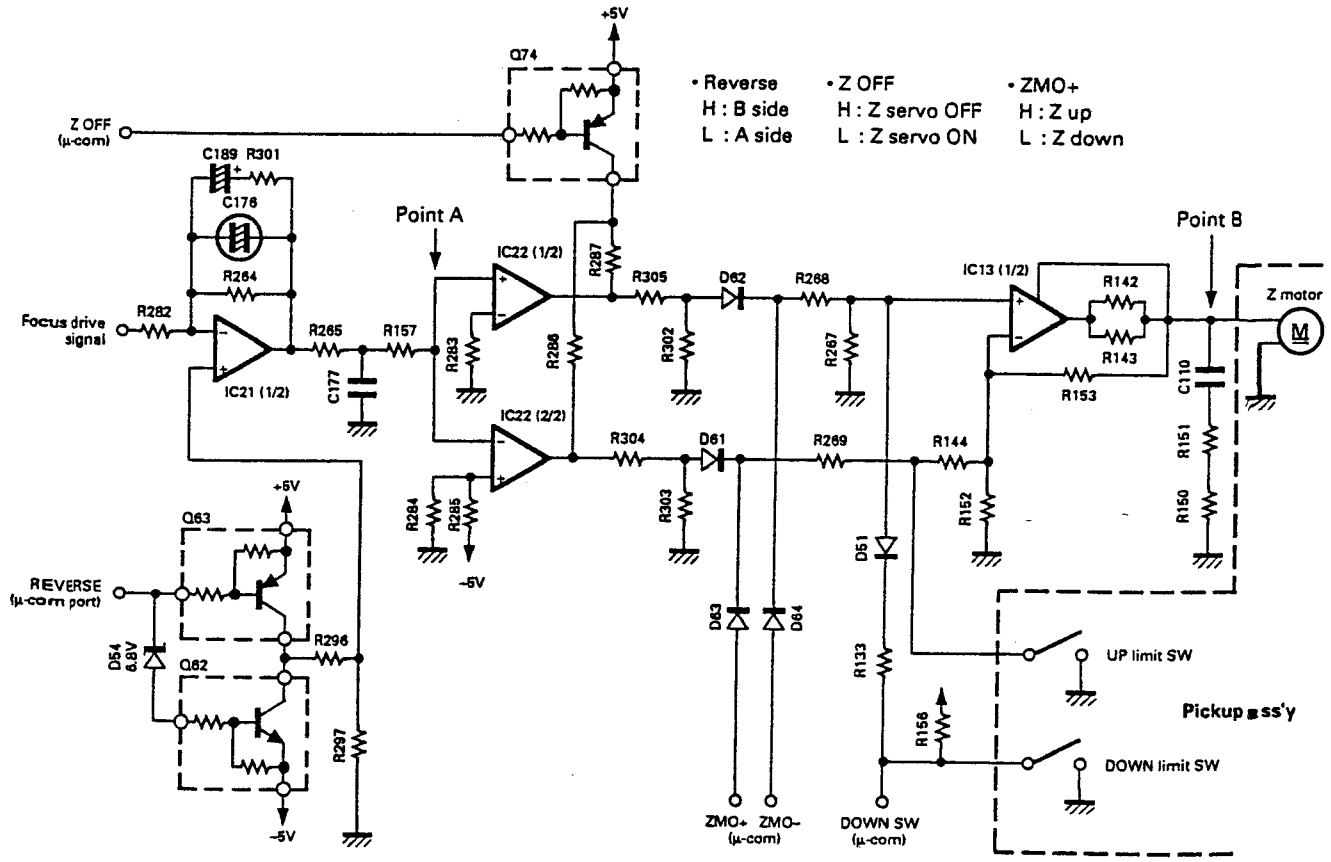
The Z servomechanism is used to keep the pickup perpendicular to the disc at the optimum position. Since it is a servomechanism of the Z axis, it is called the Z servo. In case of LVD-K9100, it may be called the height servo. This mechanism has two roles. One is to prevent the pickup from interfering with the disc tray, disc turner, warped disc, etc. by lower it when it moves across the side A and side B. The other role is to control the lens and pickup to the best heights for the actuator while the focusing function is turned on, by utilizing the elevating function of this mechanism.

The outline of the operation is as follows; Error signals for the Z servo are obtained from the low-range elements of the actuator drive signals for the focus servo. At this time, the standard points to which errors should converge are set independently for the side A and side B. The reason for this setting is that the pickup should be raised as little for the best operating position when the side A is played since it is lowered by its weight. On the other hand, when the side B is played, the pickup is set upside down and is lowered by its weight, thus it should be also raised a little.

This error of the pickup is compared with a certain voltage, then signals on the forward side and reverse side are generated to move the motor with a certain voltage. If the Z servo is turned on, this signal is amplified with the drive amplifier to drive the motor to converge the error to the standard points of the side A and side B.

The pickup assembly contains the up-limit switch which prevents the pickup from rising excessively and the down-limit switch to prevent the latter from lowering excessively. If the up-limit switch is turned on, the input on the UP side of the drive amplifier is shorted to stop the motor by hardware means. If the down-limit switch is turned on, the motor is stopped by hardware means and the operation of this switch is monitored by the μ-com.

If the Z servo is turned off, the pickup is raised and lowered by controlling the input of the drive amplifier with the signals ZMO+ for raising and ZMO– for lowering sent from the μ-com.



CIRCUIT DESCRIPTION

The μ-com controls the raising time of the pickup on the basis of the turn-on point of the down-limit switch.

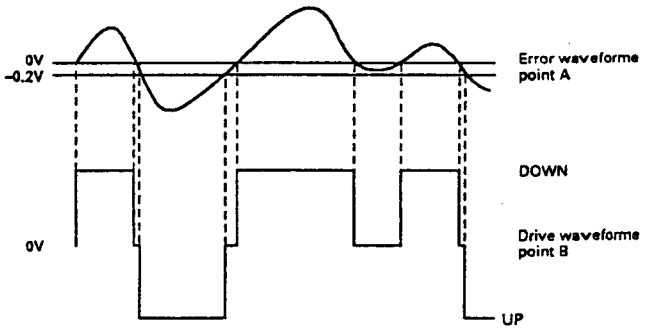
The IC21 is a phase compensation amplifier which generates error signals for the Z servo from the focus drive signals. The voltage used to determine the converging point is input to this amplifier. This voltage is generated as follows; When the reverse signal of the μ-com is at L, Q63 of the side A is turned on and Q62 is turned off. As the result, +5V is output from the collector and divided by R296 and R297. This divided voltage is input to the above amplifier.

If the reverse signal is at H, Q63 of the side B is turned off and Q62 is turned on, and –5V is output from the collector and divided, and this divided voltage is used as the positive input of the IC21.

The comparator, IC22 compares with a positive signal with 0 V, and a negative signal with –0.2 V. When the error signal is above 0V, the IC22 1/2 outputs +5V. If the former is below –0.2V, the IC22 2/2 outputs +5V. If the former is between 0V and –0.2V, the IC22 outputs 0V from both sides. That is, this range is the non-operating range.

Since the IC22 is a comparator having an open collector, the servo is turned on and off by turning on and off the voltage of +5V applied to R286 and R287. When the μ-com controls, the servo is turned off.

The output of the IC22 1/2 is for the down side, and that of the IC22 2/2 is for the up side. Each output is adjusted with R302 ~ R305, then undergoes OR control performed by the control line of the μ-com and D61 ~ D64. The μ-com outputs the voltages of +5V for both ZMO+ and ZMO–, which are adjusted, then input to the IC13 1/2. The IC13 1/2 inverts and amplifies either of them to drive the motor with it.

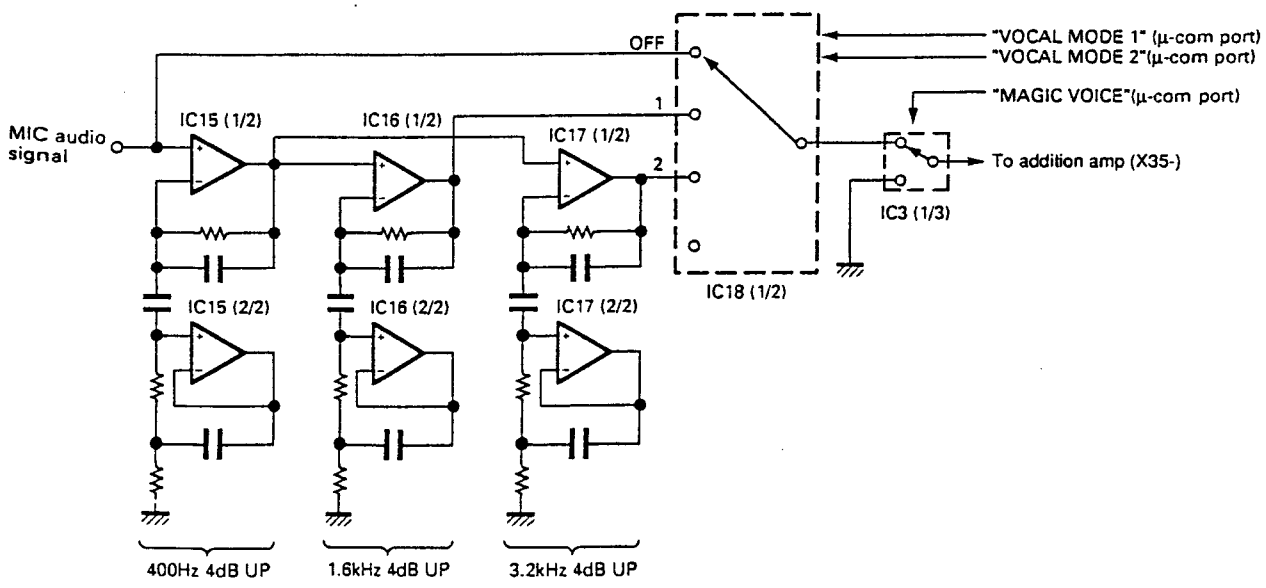


7. Vocal Mode Circuit (X25-5410)

This circuit changes the type, or frequency, of the voice of each singer to improve the modulation of the voice. Unlike the broad characteristics of the conventional tone control, the characteristics of this circuit are similar to those of a graphic equalizer.

For higher Q, a resonating circuit consists of a simulated inductor circuit and a capacitor, and it is combined with a non-inverting amplifier circuit. If the MAGIC VOICE is turned on, the main sound elements of this microphone are not necessary. Accordingly the IC3 1/3 cuts out the latter.

Vocal mode OFF → Kept at present state.
Vocal mode 1 → +4dB at 400 Hz, +4dB at 1.6kHz
Vocal mode 2 → +4dB at 400 Hz, +4dB at 3.2kHz



CIRCUIT DESCRIPTION

8. MPX Balance and Assist Level Circuit (X25-5410)

Only one volume (VR4) has the functions of the conventional MPX balance volume and those of an assist level volume.

A. When the ASSIST VOCAL is turned off

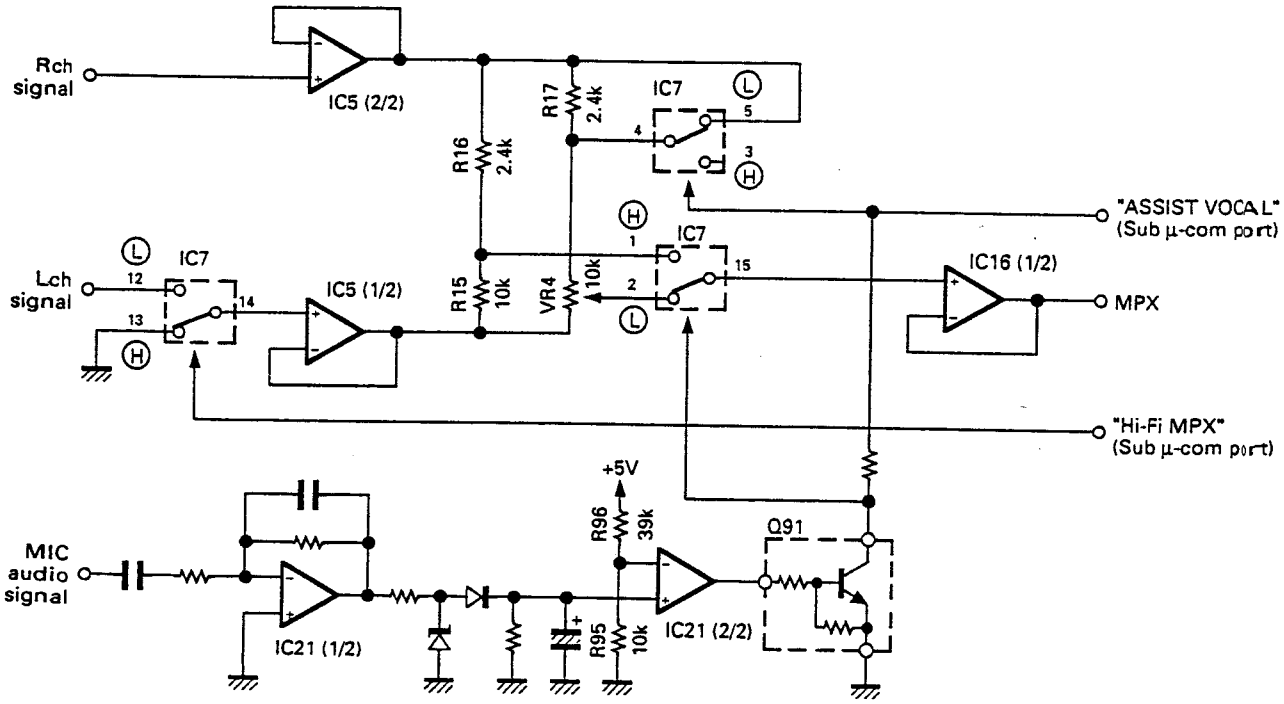
Since the "ASSIST VOCAL" is at L, the Lch signal and the Rch signal are mixed with the VR4, then output from the MPX.

B. When the ASSIST VOCAL is turned on

Since the "ASSIST VOCAL" is at H, the output of the MPX depends on the operation of Q91.

When a sound signal is input from the microphone, if the non-inverting input terminal voltage (the voltage obtained by amplifying the sound signal with the IC21 1/2 and rectifying it with a voltage doubler circuit) is higher than 1V, Q91 is turned on and the MPX outputs the Rch signal up to 80% (Lch signal is 20% at this time). If the above voltage is below 1V, Q91 is turned off and the MPX outputs the Rch signal of 20% (Lch signal is 80% at this time).

In the Hi-Fi MPX mode, the Lch signal is cut out, since it is not necessary. The reason why the maximum Rch signal is set to 80% in the above explanation B is that the Rch signal of some music sources is only vocal signal.



This drawing shows the circuit in the Hi-Fi MPX mode with the ASSIST VOCAL turned off.

CIRCUIT DESCRIPTION

9. KEY CONTROL LED Lighting Up Circuit (X25-5410)

A. When all LED's are turned off (In the NORMAL mode)

Since the pins 66 and 69 are at H, the outputs of 5/6 and 6/6 of the IC303 are set to L, and Q311 is turned off. Accordingly, all the LED's are turned off.

B. When "♭" is lighted up

Since the pin 66 is at H and 69 is at L, the output of the IC303 (5/6) is at H and that of (6/6) is at L, and Q311 is turned off. Accordingly, D307 and D306 which receive a forward bias are lighted up.

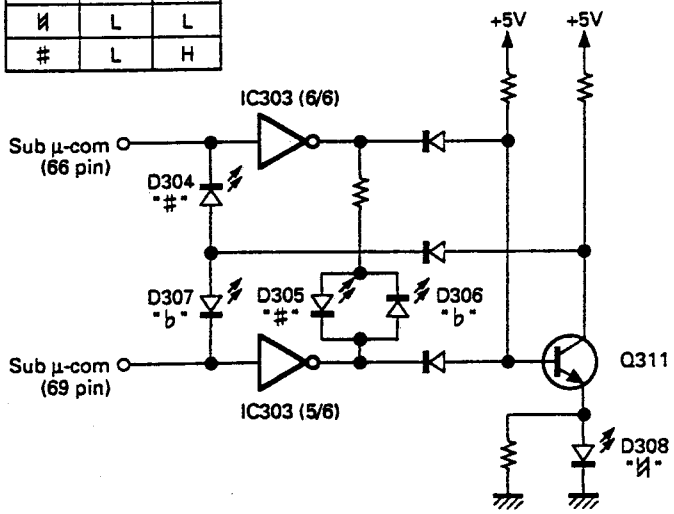
C. When "#" is lighted up

Since the pin 66 is at L and 69 is at H, the output of the IC303 (5/6) is at L and that of (6/6) is at H, and Q311 is turned off. Accordingly, D304 and D305 which receive a forward bias are lighted up.

D. When "♮" is lighted up

Since pins 66 and 69 are at L, the outputs of 5/6 and 6/6 of the IC303 are at H, and Q311 is turned on. Although D304 and D307 receive a forward bias, they are not lighted up, since D308 is lighted up by a lower voltage. As the result, only D308 is lighted up.

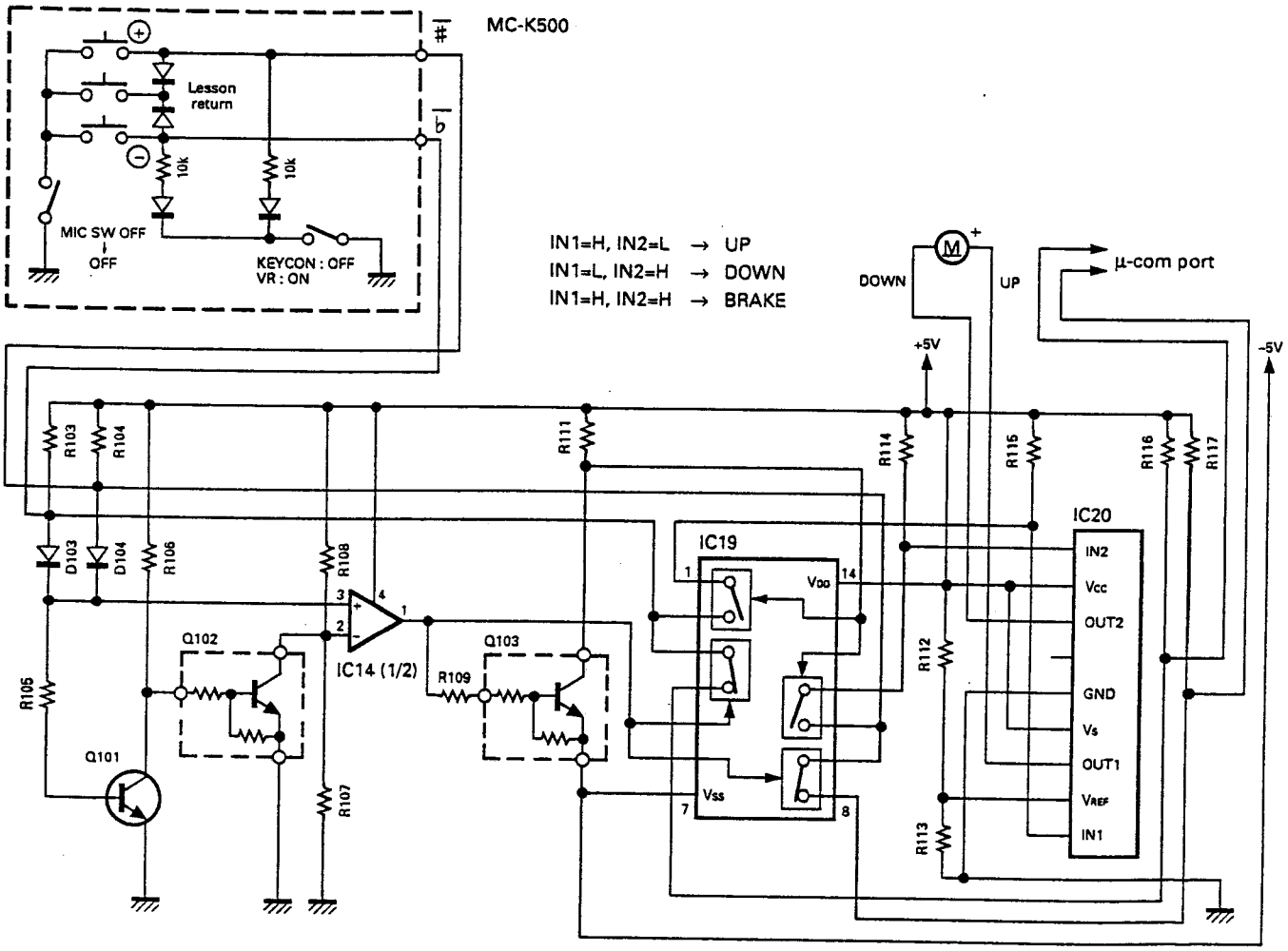
	66 pin	69 pin
All OFF	H	H
♭	H	L
♮	L	L
#	L	H



CIRCUIT DESCRIPTION

10. Key Operation, VR Control, and Lesson Return Function Control with the Microphone (X25-5410)

The # and b lines of the microphone (MC-K500) are used to operate the keys, control the VR of the microphone 1, and control the lesson return function.



A. When the microphone switch is at KEY CONTROL

Q101 is turned on and Q102 is turned off. Since the non-inverting input terminal voltage of the IC14 (1/2) is higher than the inverting input terminal voltage (Approx. 4V), the saturated voltage on the positive side is output. Accordingly, Q103 is turned on, and the IC19 is so set that the control signals can pass to only the port of the μ-com. That is, the keys can be controlled.

B. When the microphone switch is at VR

Q101 is turned on and Q102 is turned off. Since the inverting input terminal voltage of the IC14 (1/2) is higher than the non-inverting input terminal voltage, the saturated voltage on the negative side is output. Accordingly, Q103 is turned off, and the IC19 is so set that the control signals can pass to only the IC20. That is, the VR can be controlled.

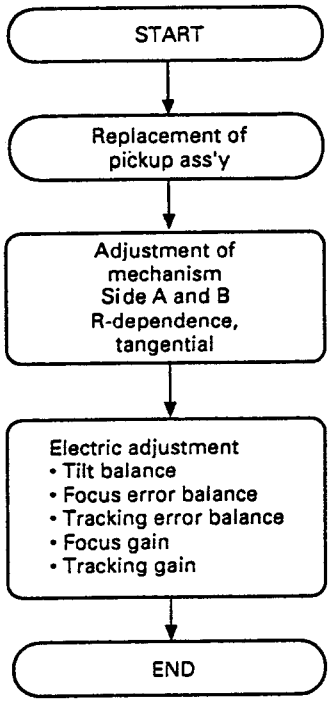
C. When the LESSON RETURN key is pushed (It works if the microphone switch is at any position other than OFF)

Since Q101 is turned off and Q102 is turned on, the IC14 (1/2) is set for the KEY CONTROl, similarly to A above. At this time, the μ-com recognizes the LESSON RETURN.

ADJUSTMENT

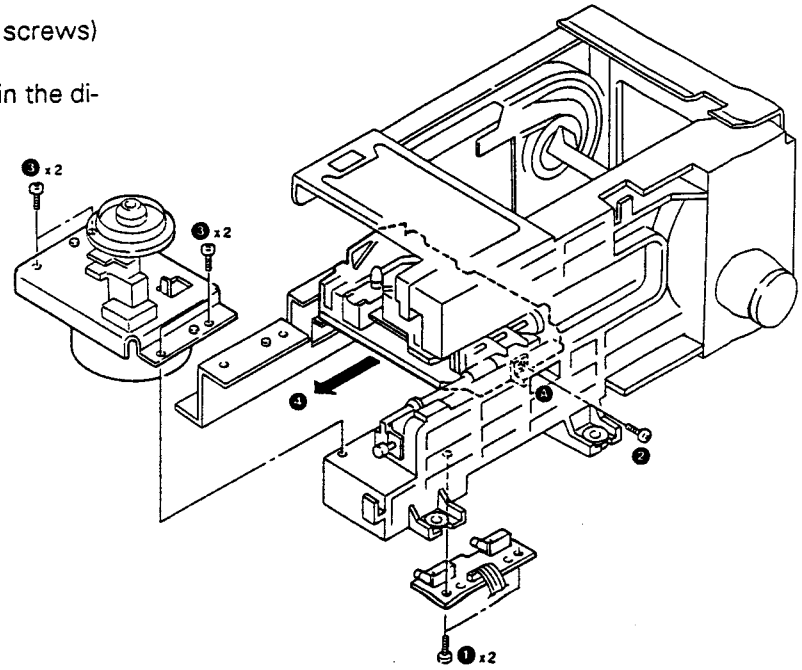
1. Flow Chart for Replacement of Pickup

* Remove the mechanism assembly from the body in advance.



2. Removing Procedure of Pickup Unit

1. Disconnect the flexible cable of the pickup assembly. Remove the switch board (Two screws) (❶).
2. Move the pickup assembly to the point A, and remove the pickup guide (One screw) (❷).
3. Remove the disc motor assembly (Four screws) (❸).
4. Remove the pickup assembly by moving it in the direction of the arrow (❹).

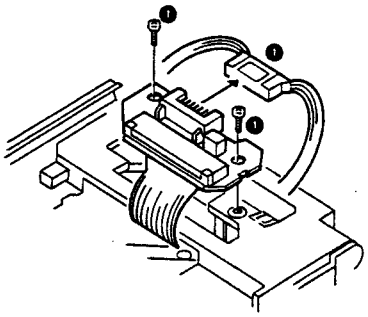


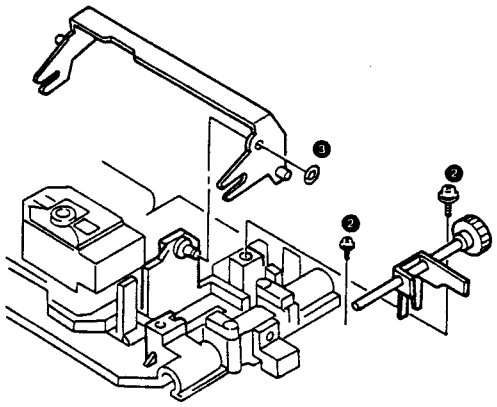
ADJUSTMENT

3. Replacing Procedure of Pickup

3-1. Removal

1. Remove the pickup board (Two screws), and disconnect the connector (8-pin) (❶).
2. Remove the gear assembly for the Z servo (Two screws) (❷).
3. Remove the arm locking washer for the Z servo, and remove the Z servo arm (❸).

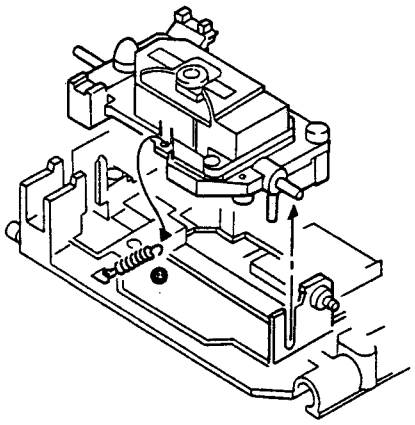


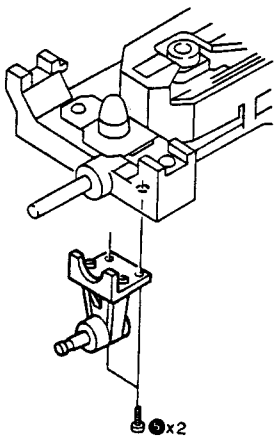


4. Remove the fixing spring of the pickup, and remove the pickup (❹).
5. Remove the tilt drive lever (Two screws) (❺).

3-2. Installation

* Install the parts by performing the removing procedure in the reverse order.

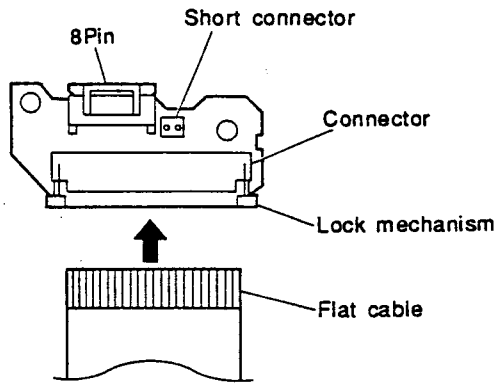




ADJUSTMENT

4. Installation Procedure of Pickup Unit

* Install the pickup unit by performing the removing procedure of the pickup in the reverse order.
When installing it, observe the following points.



4-1. Connection of flexible cable

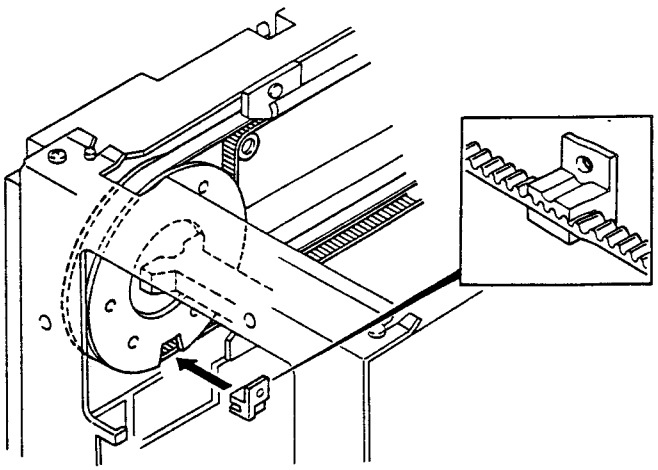
Insert the flat cable in the connect and apply the connector lock securely. Take care that the center of the lock will not float.

4-2. Disconnection of LD short connector

Just before installing the mechanism assembly to the body, disconnect the short connector (2 pin).

4-3. Matching of phase of pickup guide

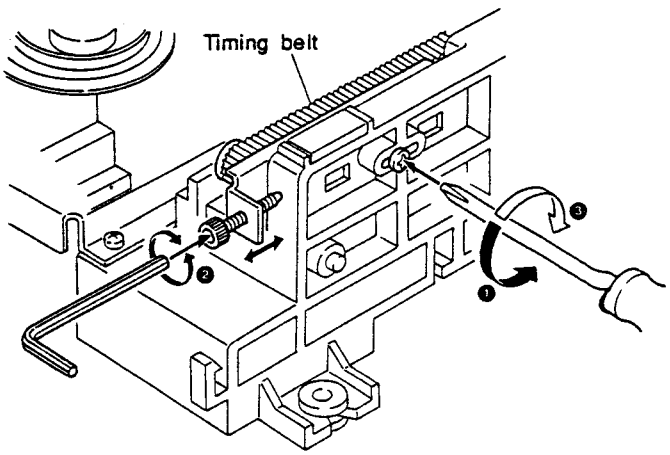
When the pickup is replaced, if the pickup guide is not removed, the phase of the latter is not shifted basically. If it has been shifted, however, adjust the guide to the position shown below.



4-4. Tension of timing belt for feeding

When the pickup is replaced, if the timing belt is not removed, the latter does not need to be adjusted again. If necessary, however, adjust it according to the following procedure.

1. Loosen the screw (1 piece), (❶).
2. Adjust the tension of the timing belts with the adjustment screw (2.0kg), (❷).
3. Tighten the screw (1 piece), (❸).



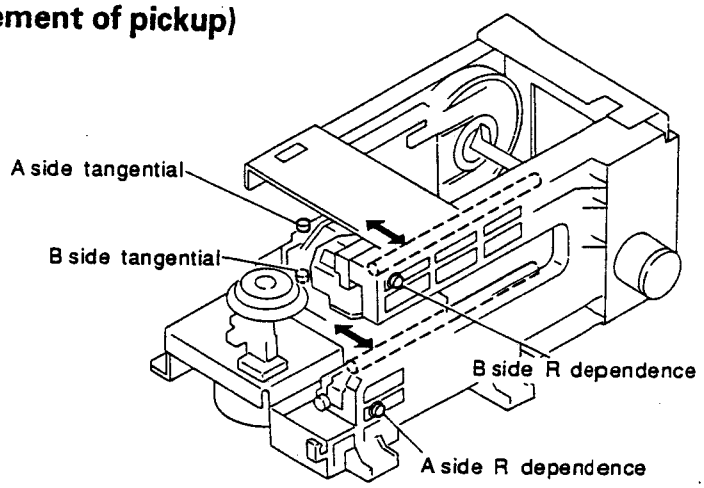
ADJUSTMENT

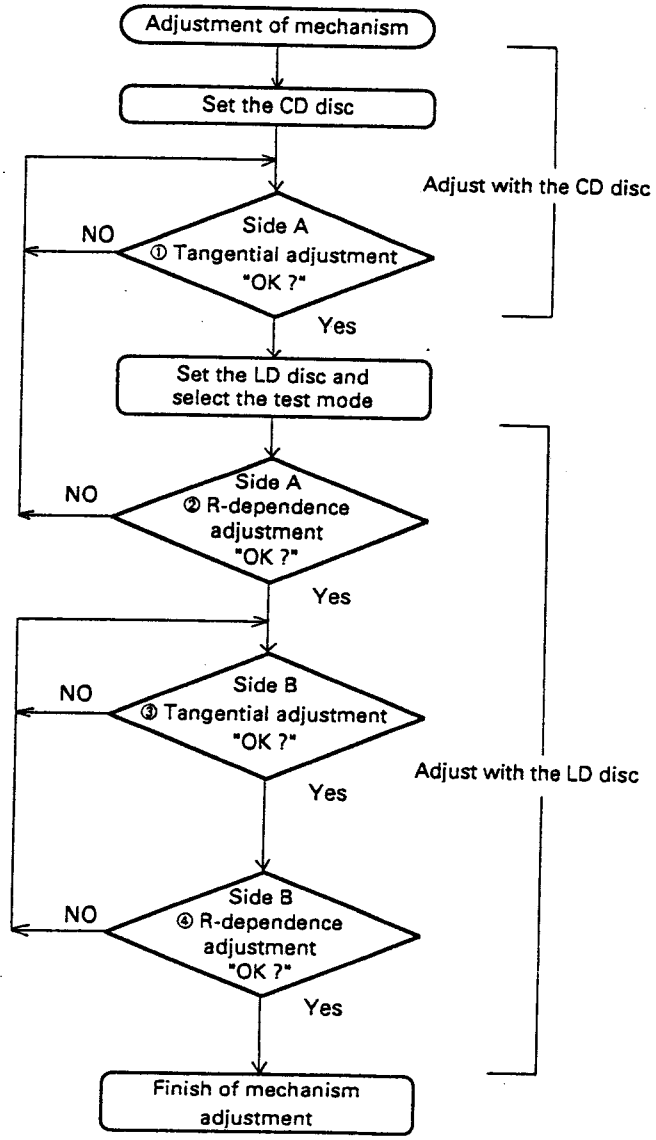
5. Adjustment of mechanism (After replacement of pickup)

After replacing the pickup, perform the following adjustments. If all the units have been adjusted, go to the next step.

Disc and tools to be used

1. CD test disc (SONY YEDS-18 or equivalent)
2. LD disc (30cm, CAV digital sound, common LD disc)
3. Hexagon wrench (2.0mm)





ADJUSTMENT

MECHANISM ADJUSTMENT PROCEDURE

No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG.
1	TANGENTIAL on side A	CD DISC	Connect an oscilloscope to RF : CN20-8 (X29-2450, C/13)	Set and play the CD disc. Search for outside. (Until the tangential screw on the side A is seen.)	Tangential adjustment screw on side A	Maximum eyepattern	–
2	R-DEPENDENCE on side A	LD DISC	Connect an oscilloscope to CH1 : CN20-1 (F) CH2 : CN20-2 (E) and select X-Y mode (*1). (X29-2450, C/13)	Select TEST mode and set a LD disc. ↓ Press the PLAY key. ↓ If a picture appears, press the PLAY key again to select the tracking off mode. ↓ Adjust, then press the STOP key.	R-dependence adjustment screw on side A	Adjust so that the Lissajous' wave form becomes –45°.	ⓐ
3	TANGENTIAL on side B	LD DISC	Connect an oscilloscope to RF : CN20-8 (X29-2450, C/13)	In the test mode described above, press the SIDE B button. ↓ Press the PLAY key.	Tangential adjustment screw on side B	Maximum eyepattern	–
4	R-DEPENDENCE on side B	LD DISC	Connect an oscilloscope to CH1 : CN20-1 (F) CH2 : CN20-2 (E) (*1) (X29-2450, C/13)	In the test mode described above. ↓ Press the PLAY key. (Set the tracking off mode.) ↓ Adjust, then press the STOP key.	Grating adjustment screw on side B	Adjust so that the Lissajous' wave form becomes –45°.	ⓐ

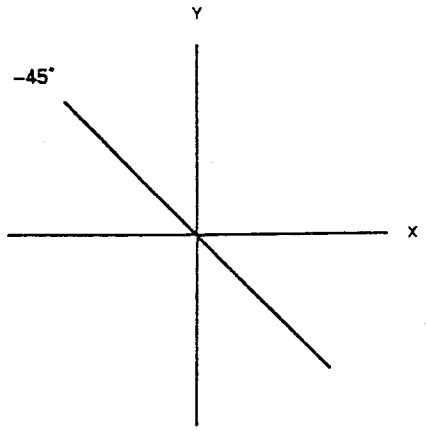
FIG. = Wave-form (Page 39)

Note : *1 ..... If an L.P.F (33 kohms + 1000 pF or so) is connected, adjustment becomes easier. Perform the adjustments 2 – 4 in the test mode.

CD disc ..... CD test disc (SONY YEDS-18 or equivalent)

LD disc ..... CAV 30cm (with digital sound)

ⓐ R-DEPENDENCE adjustment



LVD-K9200

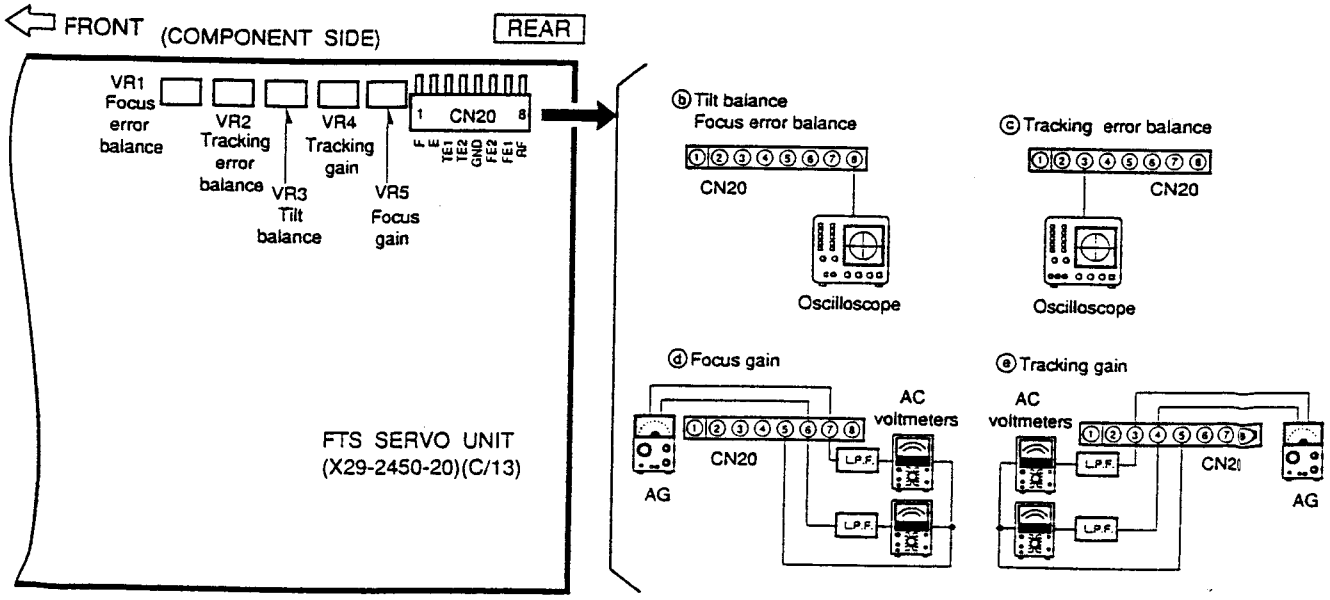
ADJUSTMENT

FTS SERVO UNIT (X29-24XX-XX : 50-20 Mtype, 51-02 P type)

No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG.
1	TILT BALANCE	LD DISC	Connect an oscilloscope to RF : CN20-8.	Side A : Frame No. 20,000 STILL	VR3	Maximize the amplitude of the RF signal.	ⓑ
2	FOCUS ERROR BALANCE	LD DISC	Connect an oscilloscope to RF : CN20-8.	Side A : Frame No. 20,000 STILL	VR1	Maximize the amplitude of the RF signal.	ⓑ
3	TRACKING ERROR BALANCE	LD DISC	Connect an oscilloscope to TE : CN20-3.	Side A : Frame No. 5,000 STILL	VR2	Make the positive and negative jump pulsesequal	ⓒ
4	FOCUS GAIN	CD TEST DISC Apply a signal of 1.2kHz and 0.2Vp-p across the pins 6 and 7 of the CN20.	Connect an LPF to CN20 6-7 to which connect an oscilloscope or two AC voltmeters.	PLAY	VR5	Two VTVMs should read the same level.	–
5	TRACKING GAIN	CD TEST DISC Apply a signal of 1.3kHz and 0.2Vp-p across the pins 3 and 4 of the CN20.	Connect an LPF to CN20 pin 3-4 to which connect an oscilloscope or two AC voltmeters.	PLAY	VR4	Two VTVMs should read the same level.	–

FIG. = Wave-form (Page 39)

Note : LP.F ..... 33 kohms + 1000 pF or so
CD disc..... CD test disc (SONY YEDS-18 or equivalent)
LD disc .... CAV 30cm (with digital sound)



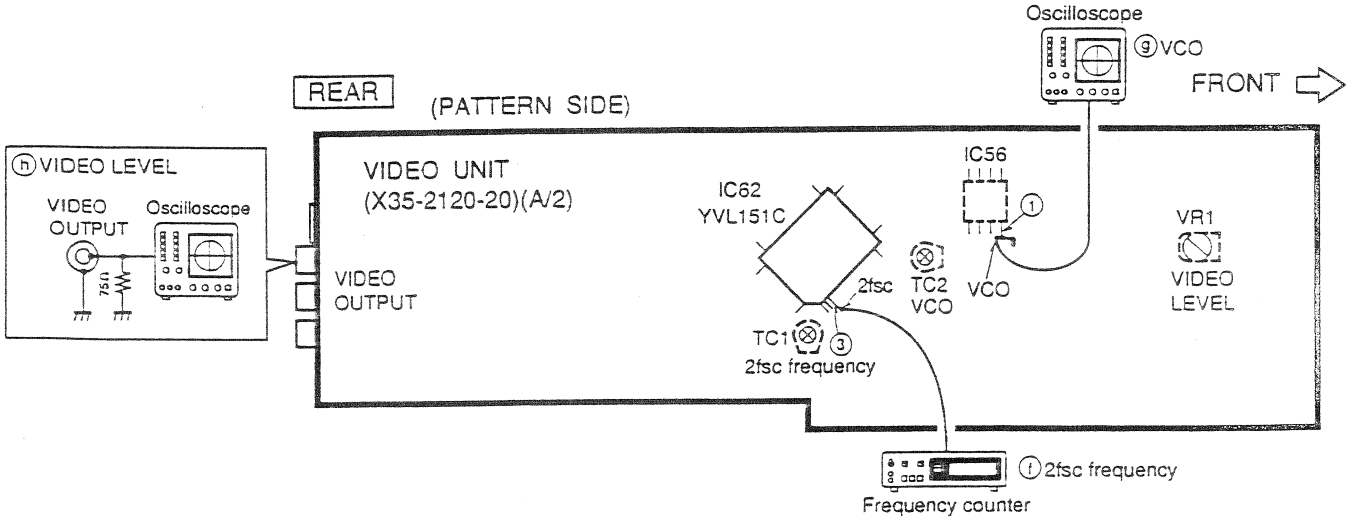
ADJUSTMENT

VIDEO CIRCUIT UNIT (X35-2120)

No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG.
1	2fsc FREQUENCY	POWER ON	Connect a frequency counter to IC62 (pin 3).	STOP	TC1	7.15909MHz ±5Hz	–
2	VCO	LD DISC	Connect an oscilloscope to IC56 (pin 1).	PLAY	TC2	Set the average voltage to DC = 0 ±0.5V.	ⓓ
3	VIDEO LEVEL	LD DISC	Terminate the video output with a 75Ω resistor and connect an oscilloscope to both ends.	PLAY	VR1	Set video amplitude to 1.0Vp-p	ⓔ

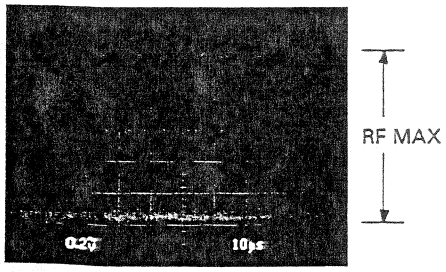
FIG. = Wave-form (Page 39)

NOTE : LD disc ..... CAV 30cm (with digital sound)

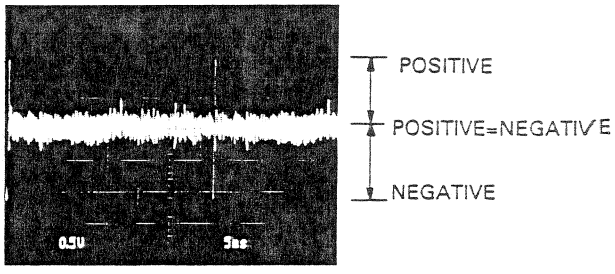


WAVE-FORM

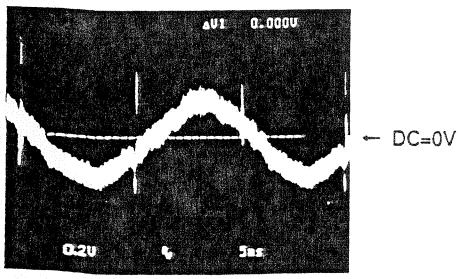
ⓑTILT BALANCE, FOCUS ERROR BALANCE



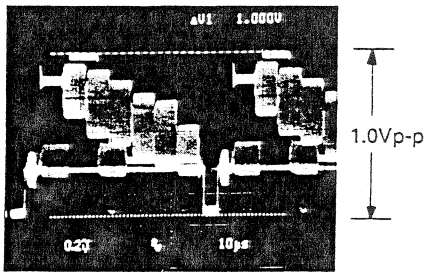
ⓒTRACKING ERROR BALANCE



ⓓVCO

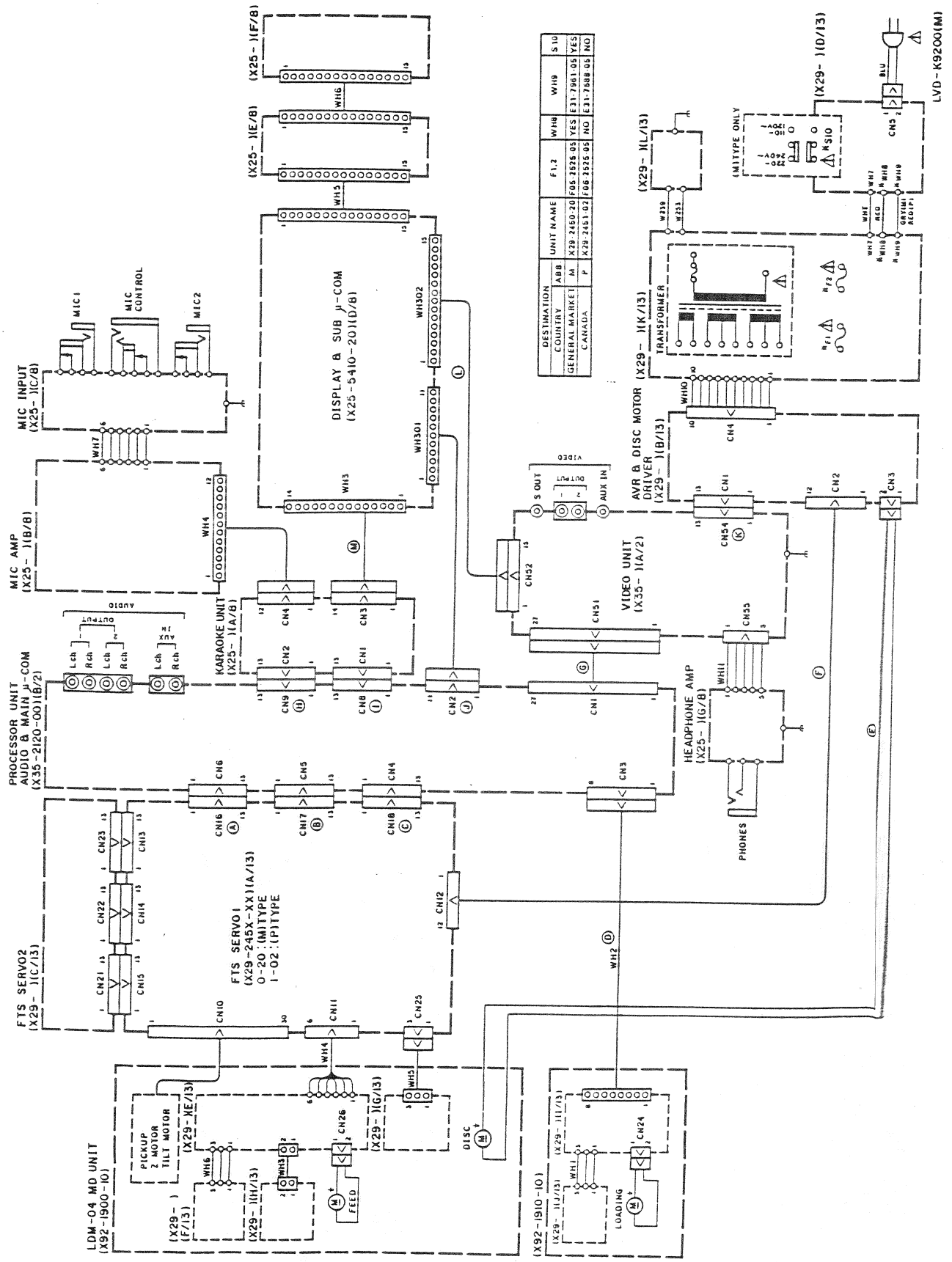


ⓔVIDEO LEVEL



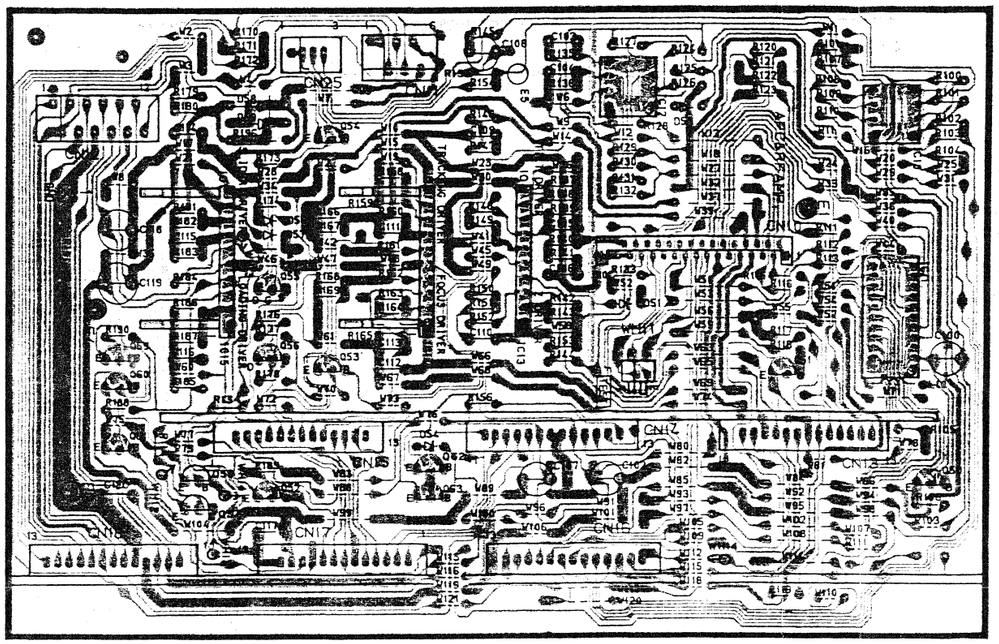
LVD-K9200

WIRING DIAGRAM

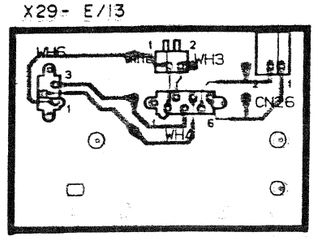


PC BOARD (COMPONENT SIDE VIEW)

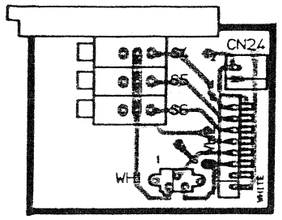
X29-2450-20 A/13



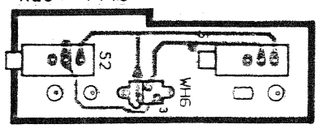
X29- E/13



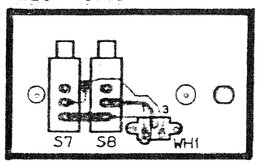
X29- I/13



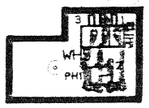
X29- F/13



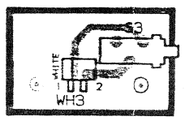
X29- J/13



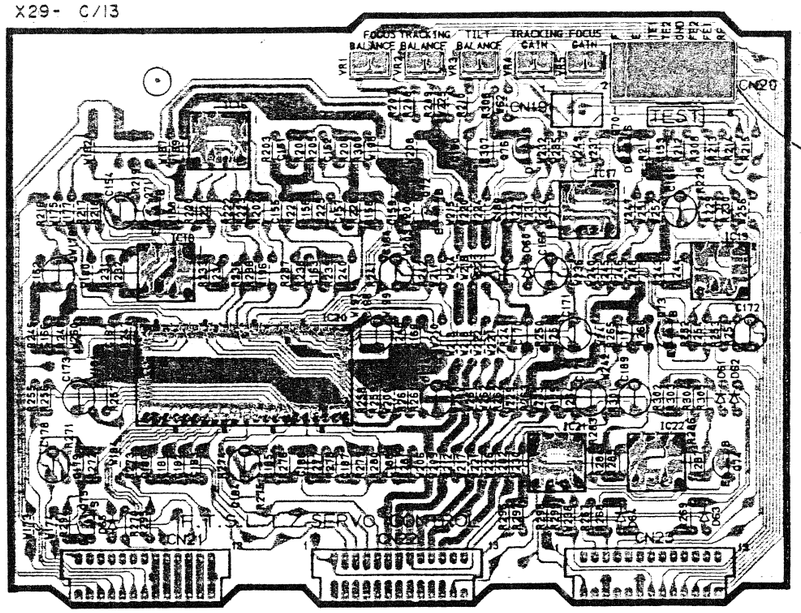
X29- G/13



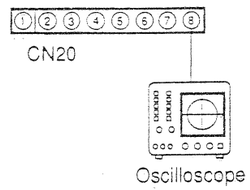
X29- H/13



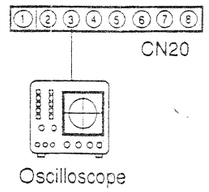
X29- C/13



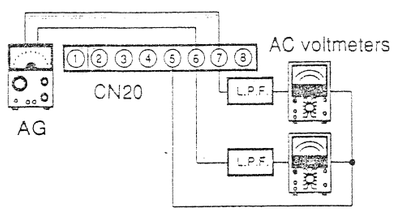
ⓑ Tilt balance
: Maximize the RF signal amplitude.
Focus error balance
: Maximize the RF signal amplitude.



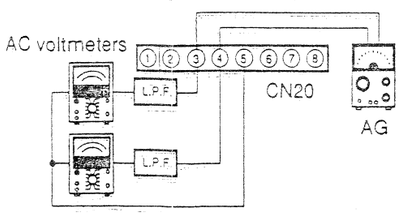
ⓒ Tracking error balance
: Make the positive and negative jump pulses equal.



ⓓ Focus gain
: Two VTVMs should read the same value.



ⓔ Tracking gain
: Two VTVMs should read the same value.

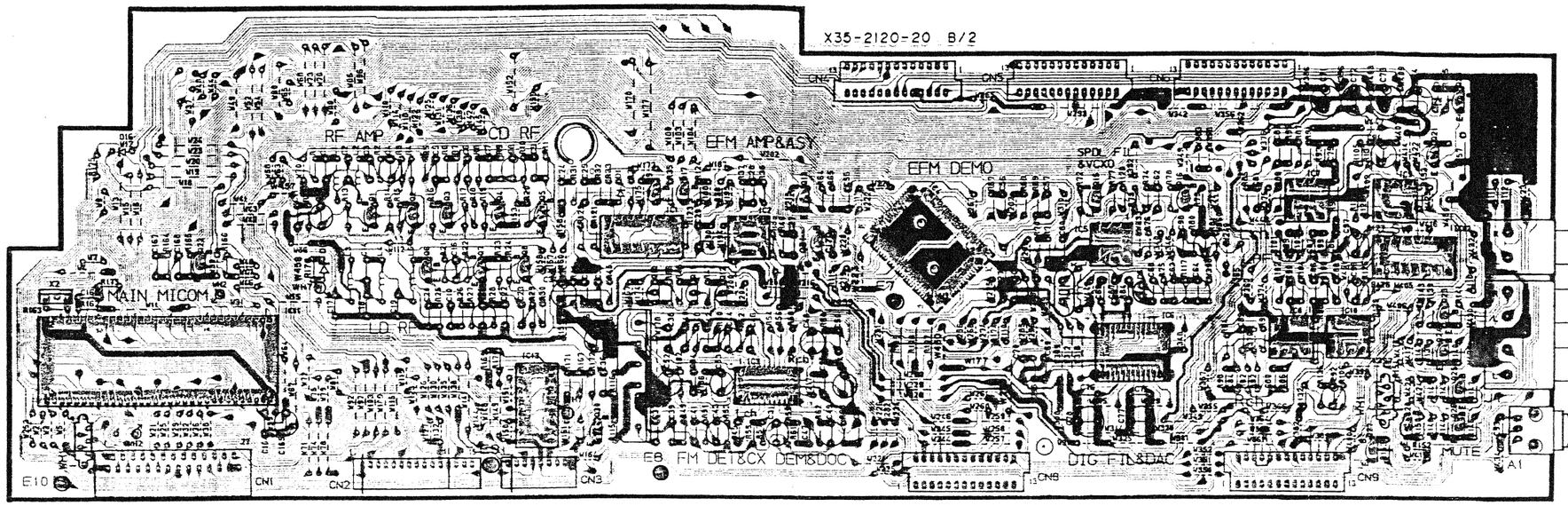


: Component side
: Foil side

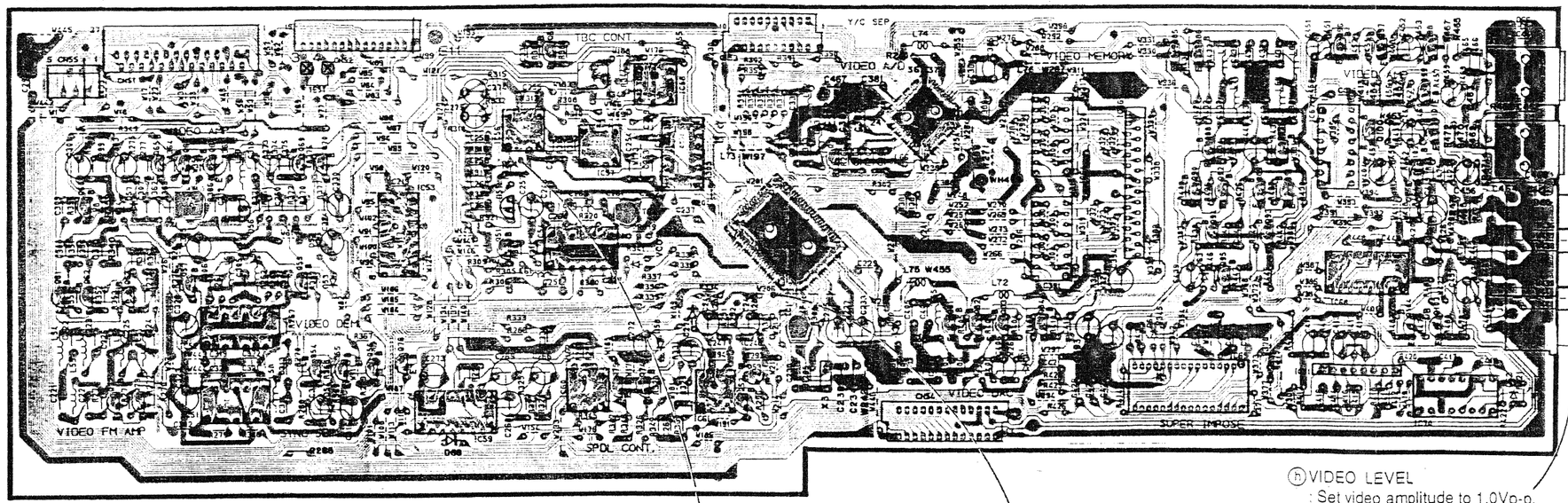
Refer to the schematic diagram for the values of resistors and capacitors.

PC BOARD (COMPONENT SIDE VIEW)

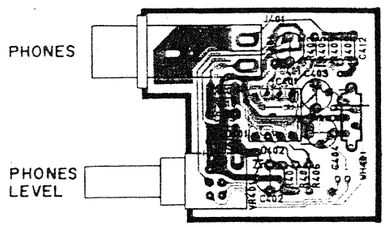
X35-2120-20 B/2



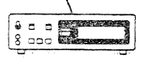
X35- A/2



X25-5410-20 G/8

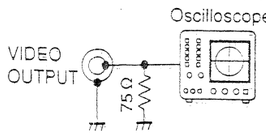


ⓖ VCO : DC=0 ± 0.5V



ⓕ 2fsc frequency
: 7.15909MHz ± 5Hz

ⓗ VIDEO LEVEL
: Set video amplitude to 1.0Vp-p.

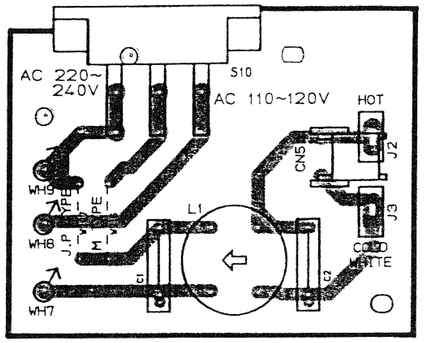


: Component side
: Foil side

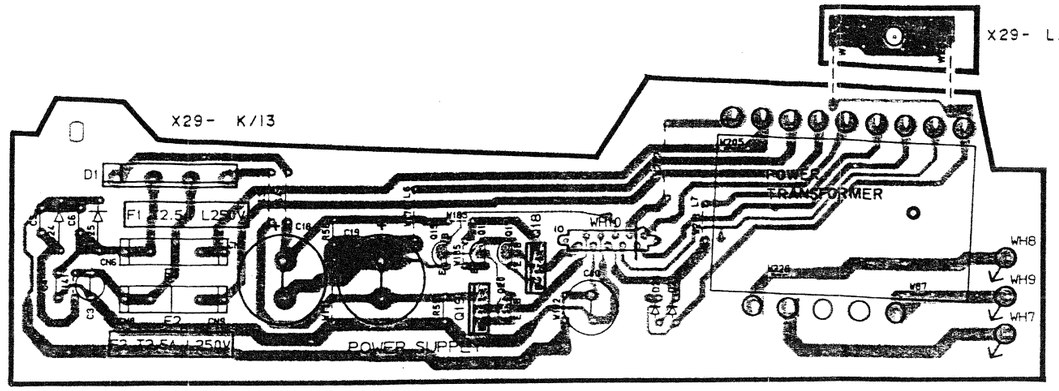
Refer to the schematic diagram for the values of resistors and capacitors.

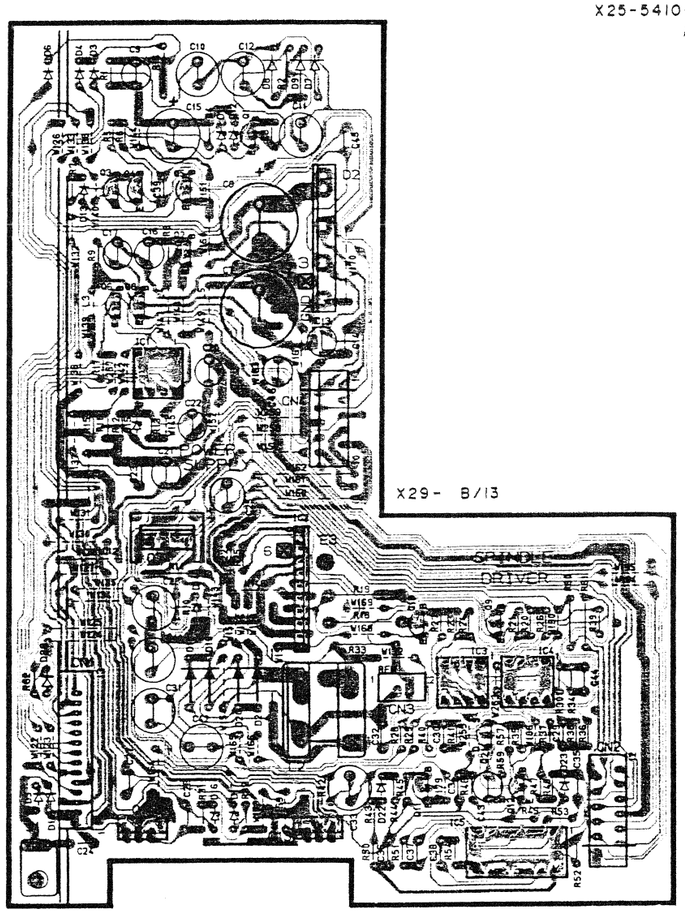
PC BOARD (COMPONENT SIDE VIEW)

VOLTAGE
SELECTOR X29-2450-20 D/13

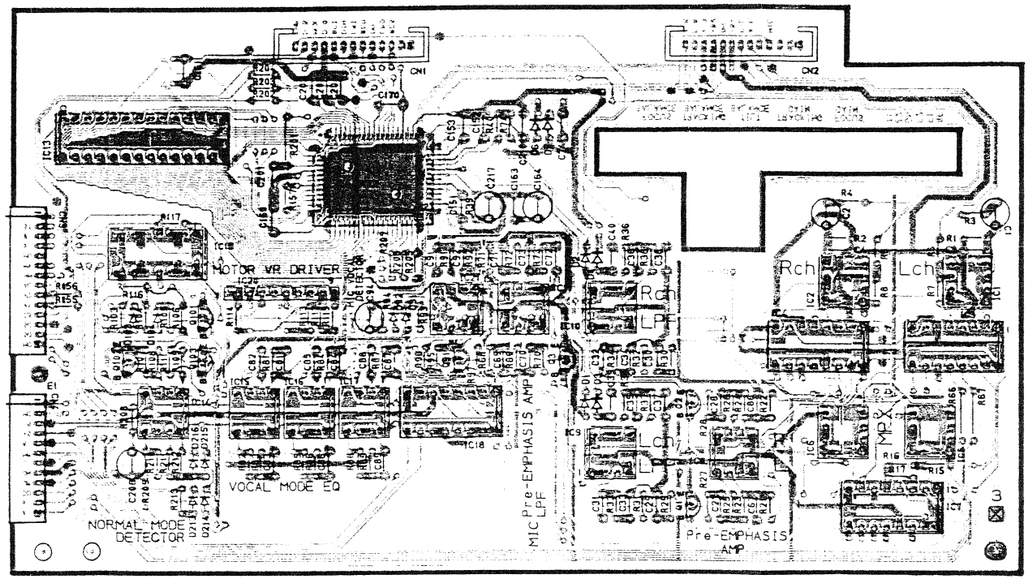


X29- L/13

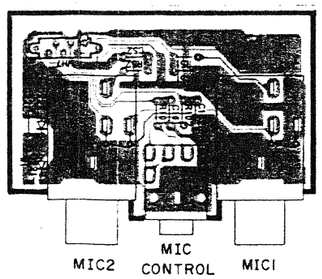




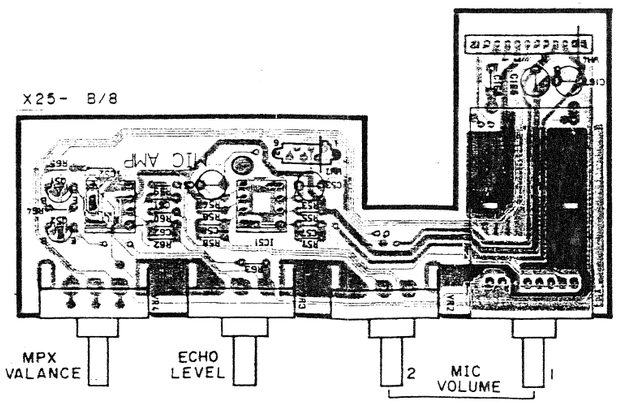
X25-5410-20
A/8



X25- C/8



X25- B/8

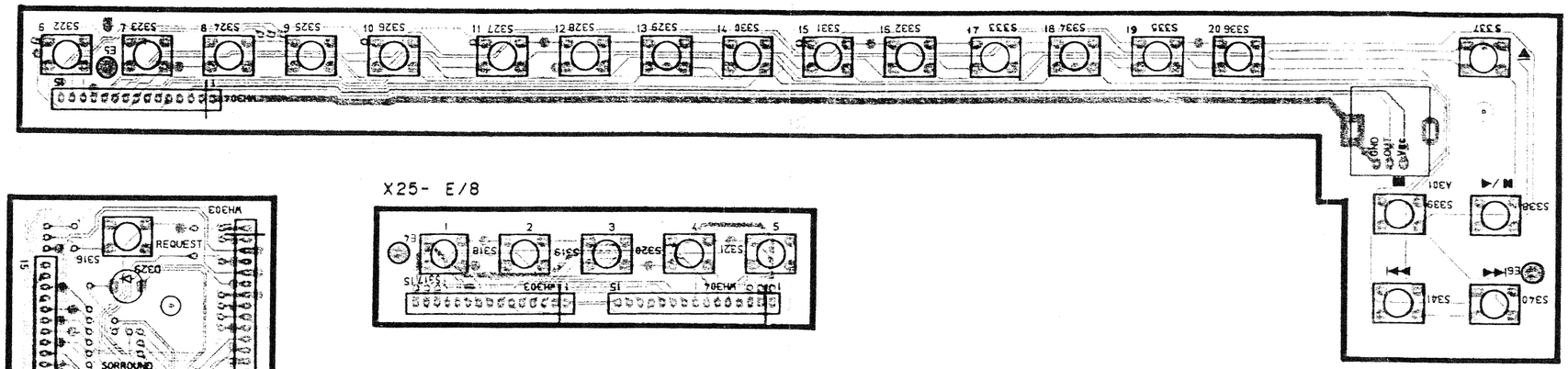


: Component side
: Foil side

Refer to the schematic diagram for the values of resistors and capacitors.

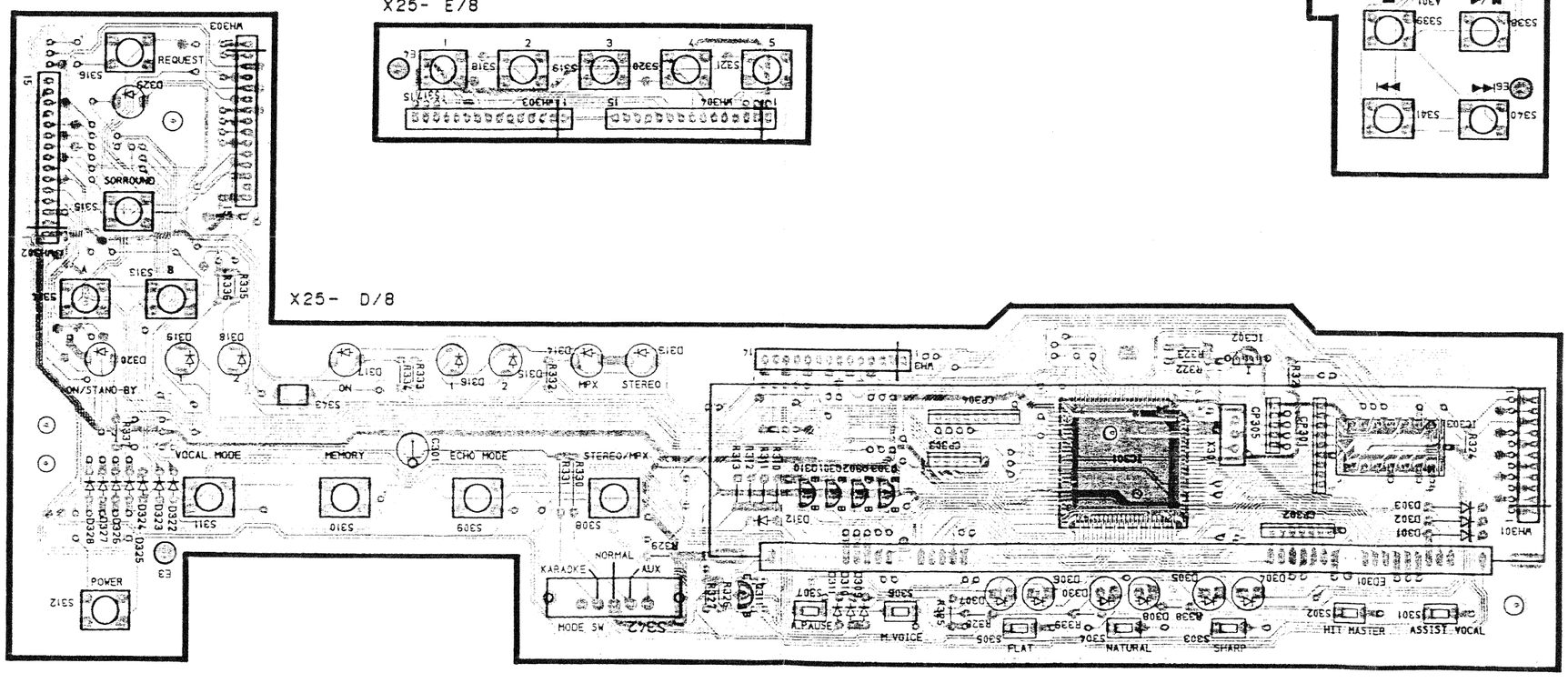
PC BOARD (COMPONENT SIDE VIEW)

X25-5410-20 F/8



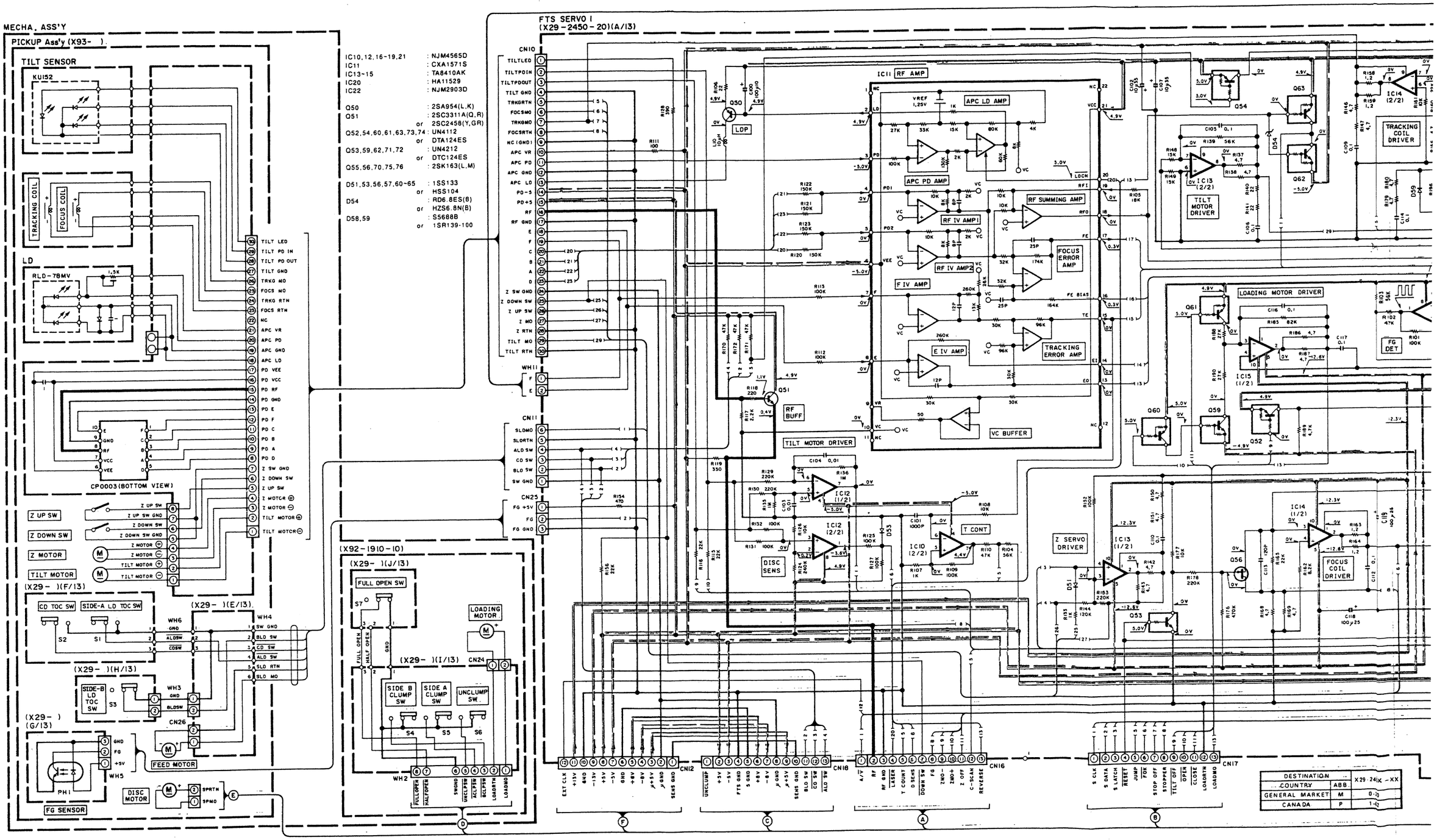
X25- E/8

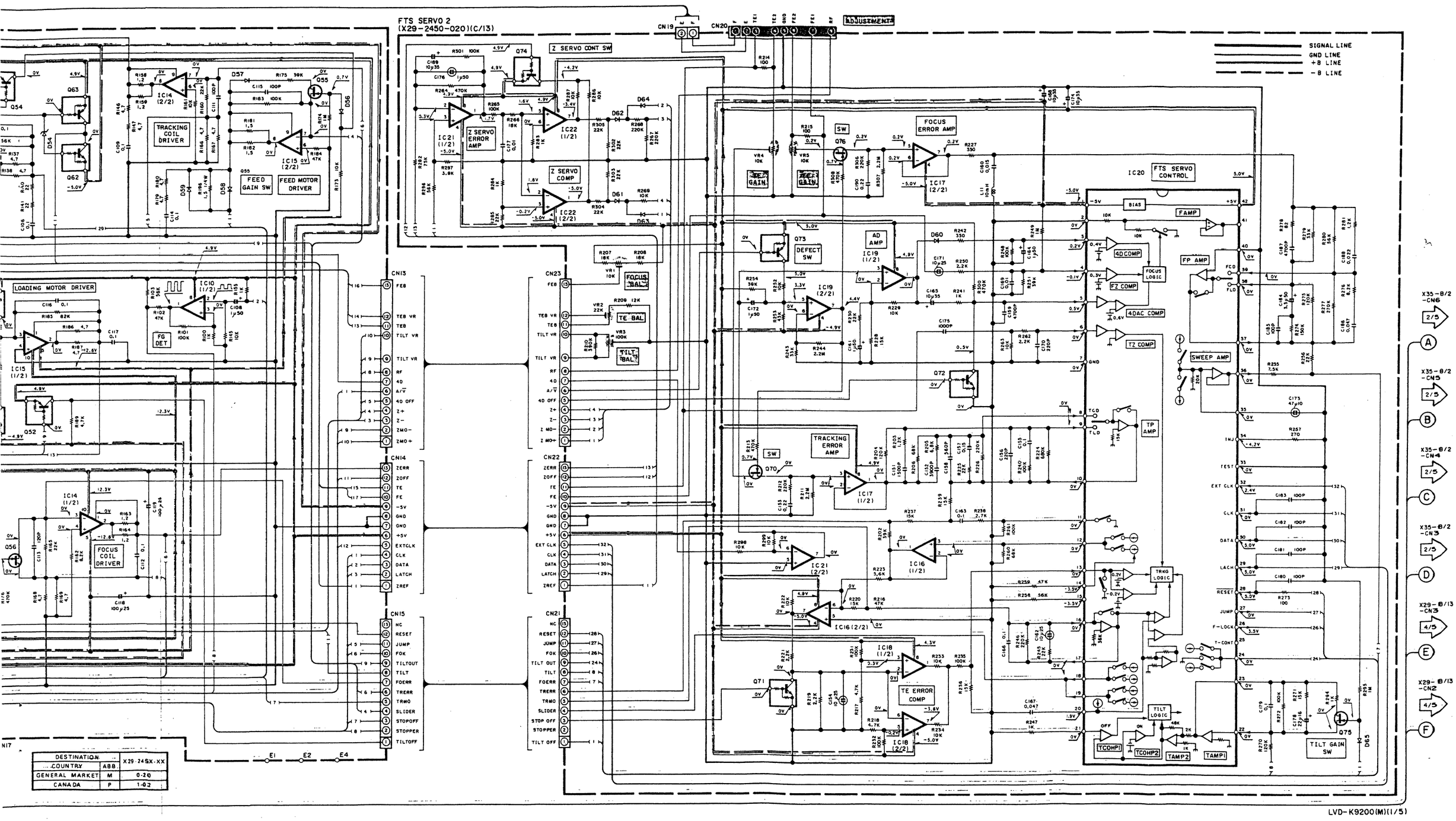
X25- D/8



: Component side
: Foil side

Refer to the schematic diagram for the values of resistors and capacitors.


MECHA. ASS'Y
PICKUP Ass'y (X93-)
TILT SENSOR
KUI52
TRACKING COIL
FOCUS COIL
LD
RLD-78MV
1.5K
TILT LED
TILT PD IN
TILT PD OUT
TILT GND
TRKG MO
FOCS MO
TRKG RTN
FOCS RTN
NC
APC VR
APC PD
APC GND
APC LD
PD VEE
PD VCC
PD RF
PD GND
PD E
PD F
PD C
PD B
PD A
PD D
Z SW GND
Z DOWN SW
Z UP SW
Z MOTOR⊕
Z MOTOR⊖
TILT MOTOR⊕
TILT MOTOR⊖
CP0003(BOTTOM VIEW)
Z UP SW
Z UP SW GND
Z DOWN SW
Z DOWN SW GND
Z MOTOR
TILT MOTOR
(X29-)(F/13)
CD TOC SW
SIDE-A LD TOC SW
S2
S1
(X29-)(E/13)
WH6
WH4
ALOSW
CDSW
BLD SW
CD SW
ALD SW
SLD RTN
SLD MO
(X29-)(H/13)
SIDE-B LD TOC SW
S3
WH3
BLDSW
CN26
(X29-)(G/13)
GND
FG
+5V
WH5
PH1
FG SENSOR
FEED MOTOR
DISC MOTOR
SPRTN
SPMO
IC10,12,16~19,21 : NJM4565D
IC11 : CXA1571S
IC13~15 : TA8410AK
IC20 : HA11529
IC22 : NJM2903D
Q50 : 2SA954(L,K)
Q51 : 2SC3311A(Q,R)
or 2SC2456(Y,GR)
Q52,54,60,61,63,73,74 : UN4112
or DTA124ES
Q53,59,62,71,72 : UN4212
or DTC124ES
Q55,56,70,75,76 : 2SK163(L,M)
D51,53,56,57,60~65 : 1SS133
or HSS104
D54 : RD6.8ES(B)
or HZS6.8N(B)
D58,59 : S5688B
or 1SR139-100
FTS SERVO I
(X29-2450-20)(A/13)
CN10
TILTLED
TILTPDIN
TILTPDOUT
TILT GND
TRKGRTN
FOCSMO
TRKGMO
FOCSRTN
NC (GND)
APC VR
APC PD
APC GND
APC LD
PD-5
PD+5
RF
RF GND
E
F
C
B
A
D
Z SW GND
Z DOWN SW
Z UP SW
Z MO
Z RTN
TILT MO
TILT RTN
WH11
CN11
SLDMO
SLORTN
ALD SW
CD SW
BLD SW
SW GND
CN25
FG +5V
FG
FG GND
(X92-1910-10)
(X29-)(J/13)
FULL OPEN SW
S7
FULL OPEN
HALF OPEN
GND
(X29-)(I/13)
CN24
LOADING MOTOR
SIDE B CLUMP SW
SIDE A CLUMP SW
UNCLUMP SW
S4
S5
S6
WH2
FULLOPEN
HALFOPEN
SWGND
UNCLPSW
XCLPSW
BCLPSW
LOADRTN
LOADMO
IC11 RF AMP
VREF 1.25V
APC LD AMP
APC PD AMP
RF IV AMP1
RF IV AMP2
F IV AMP
E IV AMP
RF SUMMING AMP
FOCUS ERROR AMP
TRACKING ERROR AMP
VC BUFFER
LDCN
RFI
RFO
FE
FE BIAS
TE
E1
E0
VR
VC
VEE
Q50
LDP
Q51
RF BUFF
TILT MOTOR DRIVER
IC12 (1/2)
IC12 (2/2)
DISC SENS
T CONT
IC10 (2/2)
Z SERVO DRIVER
IC13 (1/2)
Q53
IC14 (1/2)
FOCUS COIL DRIVER
Q54
Q63
Q62
IC13 (2/2)
TILT MOTOR DRIVER
TRACKING COIL DRIVER
LOADING MOTOR DRIVER
Q61
Q60
Q59
Q52
IC15 (1/2)
FG DET
Q56
CN12
CN18
CN16
CN17
EXT CLK
+13V
GND
−13V
+5V
−5V
GND
+8V
−8V
μ+5V
μ GND
SENS GND
UNCLUMP
A/V
RF
RF GND
T COUNT
D SENS
DOWN SW
FG
2MO−
2MO+
Z OFF
C-SCAN
REVERSE
S CLK
S DATA
S LATCH
RESET
JUMP
FOK
STOP OFF
STOPPER
TILT OFF
OPEN
CLOSE
LOADRTN
LOADMO
F
C
A
B
DESTINATION
COUNTRY ABB.
GENERAL MARKET M 0~9
CANADA P 1~9
X29-241X-XX



DESTINATION		X29-245X-XX
COUNTRY	ABB	
GENERAL MARKET	M	0-20
CANADA	P	1-0J

LVD-K9200(M)(1/5)

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LVD-K92
KENWOOD

PROCESSOR UNIT AUDIO & μ-COM (X35-2120-20) (B/2)

CN1 — RF GND, RF, RFGND, VCOE, CDME, 24BIT, SDATA, FG, SCLK, ID, VSTNC, EQ, 20/30, WRITE, A/V, VRAME, REV, R/W, CS, SCANGAIN, JUMP, -8V, HP Lch, GND, HP Rch, +8V — WH1: +8V, Rch, GND, Lch, -8V

CN6 — A/V, RF, RF GND, LASER, TCOUNT, DSENS, DOWNSW, FG, ZMO-, ZMO+, ZOFF, CSCAN, REVERS — X29-A/13-CN16 (1/5) (A)

CN5 — SCLK, SDATA, SLATCH, RESET, JUMP, FOK, CSCAN, NC, TILTOFF, OPEN, CLOSE, LOADRTN, LOADMO — X29-A/13-CN17 (1/5) (B)

CN4 — UNCLPSW, +5V, -5V, GND, GND, +8V, -8V, UCOMGND, UCOM+5V, SENSGND, BLDSW, CDSW, ALDSW — X29-A/13-CN18 (1/5) (C)

CN3 — LOADMO, LOADRTN, FULLOPEN, HALFOPEN, SWGND, UNCLPSW, ACLPSW, BCLPSW — X29-I/13-WH2 (1/5) (D)

LD EQ · CD EQ · LDD EQ · 2.3MHz, 2.8MHz B.P.F · L6 (2.3MHz / 2.8MHz)

ANALOG AUDIO DEM IC3 · LIMITTER · DELAY · STRETCH · DOS1 · DOS2 · TRC ERROR CORR. · MODE CHANGE AMP · VCA · COMP · FTC · STC

IC12 (2/3) · IC12 (1/3) · IC9 (1/2) · IC9 (2/2) · IC10 (1/2) · IC10 (2/2)

IC7 (2/2) · IC8 (1/2) · L.P.F · IC7 (1/2) · IC8 (2/2) · L.P.F

DISC MOTOR L.P.F · IC5 (1/2) · IC5 (2/2) · VCXO L.P.F · VCXO CONT

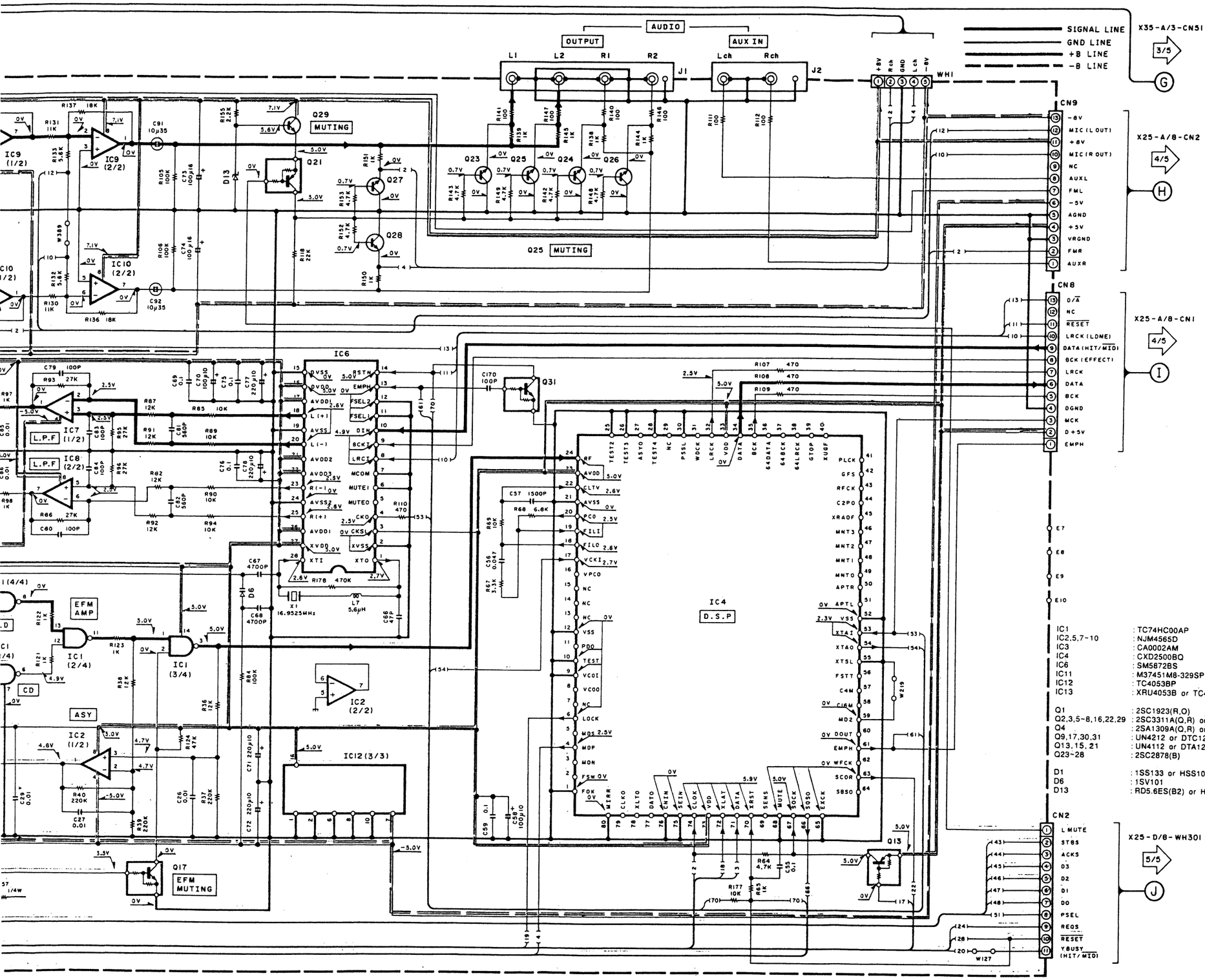
IC13 · SW. CONT

MAIN μCOM IC11

IC1 (4/4) · EFM AMP · LD · IC1 (1/4) · IC1 (2/4) · CD · ASY · IC2 (1/2) · 09

X2 10MHz

R125 1.5K 1/4W · R157 1.5K 1/4W



IC1	: TC74HC00AP
IC2,5,7~10	: NJM4565D
IC3	: CA0002AM
IC4	: CXD2500BQ
IC6	: SM5872BS
IC11	: M37451M8-329SP
IC12	: TC4053BP
IC13	: XRU4053B or TC4053BP
Q1	: 2SC1923(R,O)
Q2,3,5~8,16,22,29	: 2SC3311A(Q,R) or 2SC2458(Y,GR)
Q4	: 2SA1309A(Q,R) or 2SA1048(Y,GR)
Q9,17,30,31	: UN4212 or DTC124ES
Q13,15,21	: UN4112 or DTA124ES
Q23~28	: 2SC2878(B)
D1	: 1SS133 or HSS104
D6	: 1SV101
D13	: RD5.6ES(B2) or HZS5.6N(B2)

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LVD-K9200(M)(2/5)

LVD-K9200
KENWOOD

VIDEO UNIT
(X35-2120-20)(A/2)

IC51,54 : TC74HCU04AP
IC52 : YM3558
IC53 : TC74HC157AP
IC55 : TC74HC4066AP
IC56~58,60,61 : NJM4565D
IC59,68 : XRU4053B or TC4053BP
IC62 : YVL151C
IC63 : MC141621

Q51,52,54,55,57,63,67,68,83,85,86,93,94,99,104 : 2SC3311A(Q,R) or 2SC2458(Y,GR)
Q53,76 : UN4112 or DTA124ES
Q56,59,69,70,71,74,84,87,88,95,96,100 : 2SA1309A(Q,R) or 2SA1048(Y,GR)
Q60 : UN4212 or DTC124ES
Q61,62,65,66,72,73,81,82,89~92,103 : 2SC1923(R,O)
Q75 : 2SK163(L,M)
Q97,98,101,102 : 2SC2003(L,K)

D51 : 1SV147
D52~55,57,58,60,61,63,65,66 : 1SS133 or HSS104
D56 : KV1230Z

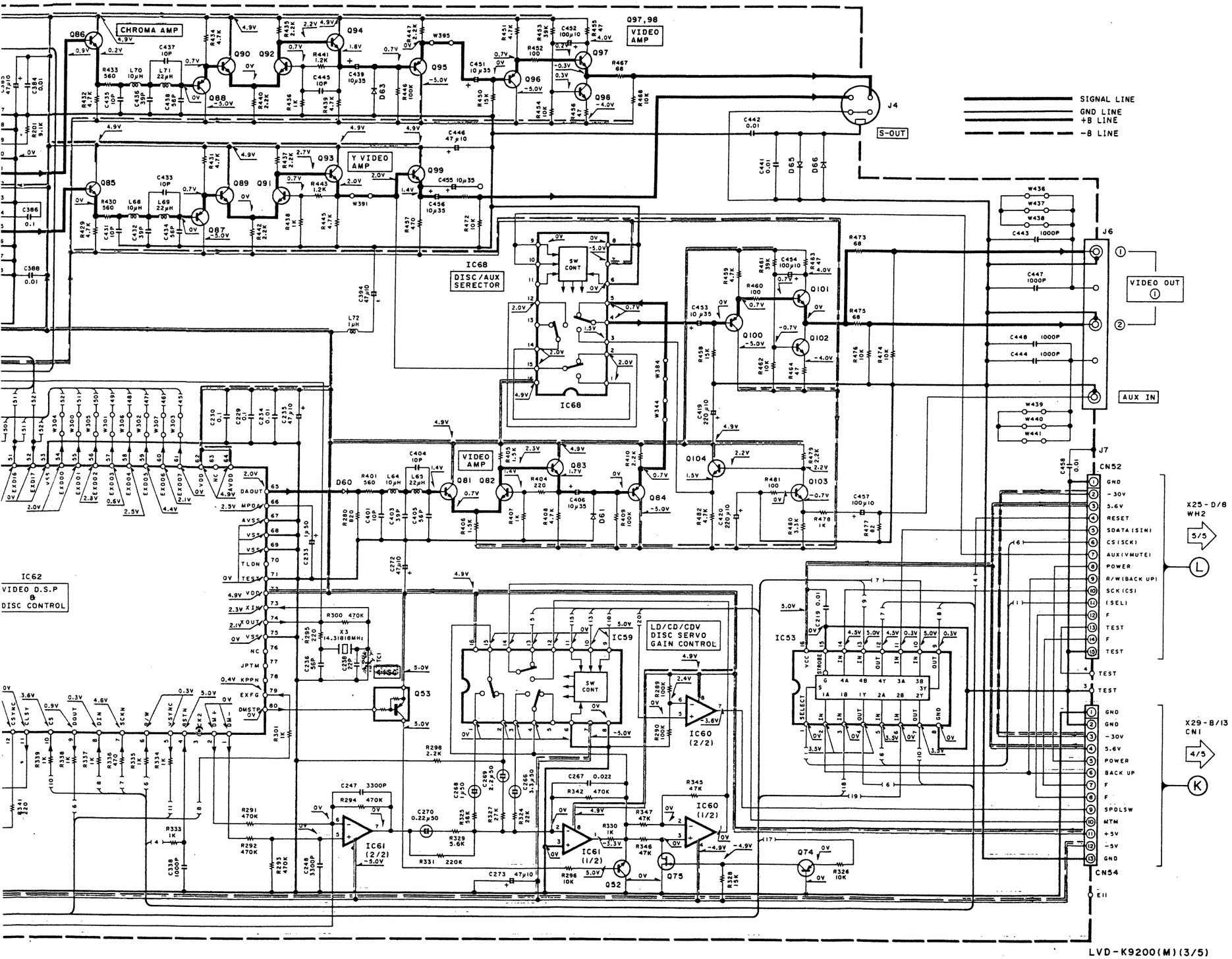
IC401 : NJM4580D
D401,D402 : HSS104 or 1SS133

(X25-5410-20)(G/8)

X35-B/2 CN1 2/5

CN51 CN55

BUFF · DE-EMP · VIDEO GAIN · T.B.C AMP · CLAMP SW · VIDEO BUFF · IC58 (2/2) · IC63 VIDEO D.S.P Y/C SEP · IC62 VIDEO D.S.P & DISC CONTROL · IC52 VIDEO DET · SYNC AMP · LIM AMP · RF AMP · 8MHz B.P.F · IC55 SW · MTF SW · IC51 (3/6) (4/6) (5/6) (6/6) · IC51 (6/6) · IC54 (1/6) · IC58 (1/2) · IC57 (1/2) · IC56 (2/2) · PLL PHASE CONP AMP · IC56 (1/2) · IC54 (5/6) · IC54 (2/6) · IC54 (3/6) · IC54 (4/6) · IC51 (2/6) · HEADPHONE AMP · HEADPHONE VR · PHONES J401 · IC401 (1/2) · IC401 (2/2)



LVD-K9200(M)(3/5)

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Y22-3430-00

LVD-K9200
KENWOOD

DESTINATION		UNIT NAME	F1,2	S10	C1,2	WH8	WH9	W207	W216
COUNTRY	ABB.								
GENERAL MARKET	M	X29-2450-20	F05-2525-05	YES	6800P	YES	E31-7961-05	NO	YES
CANADA	P	X29-2451-02	F06-2525-05	NO	0.01	NO	E31-7588-05	YES	NO

MECHA. ASS'Y DISC MOTOR 1/5 (E)

X29-A/13 -CN12 1/5 (F)

X35-B/2 -CN9 2/5 (H)

X35-B/2 -CN8 2/5 (I)

X35-A/2 -CN54 3/5 (K)

(X29-)(K/13)

TRANSFORMER

AC5.3V, AC 15V, AC (DC13V), COMMON, GND, AC(DC13V), AC(DC9V), GND, AC(DC9V), AC230V, AC5.3V, TRANS GND

*F1 250V 2.5A

*F2 250V 2.5A

(X29-) (L/13) W239 W253

(X29-)(D/13)

230-240V, 110-120V, *S10, *W207, *W216, *WH8, *WH9, WH7, L1, CN5 CN5

(M) AC110-120V/ 230-240V 50/60Hz

(P) AC120V 60Hz

AVR & DISC MOTOR DRIVER UNIT (X29-2450-20)(B/13)

J1, E3, CN4, WH10

CN1: GND, 5VGND, -30V, +5V, POWER, BACK UP, F, SPDL SW, MTN, +5V, -5V, 8V GND

CN2: SEKSGND, 5VGND, +5V, -8V, +8V, 3VGND, -5V, +5V, -15V, 13VGND, +15V, EXCLK

CN3: SPRTH, SPMO

-30V AVR

FL CONTROL, FL SW -21.0V

+8V AVR

-8V AVR

+5V AVR

+13V AVR

-13V AVR

AVR CONTROL

+5V AVR

-5V AVR

+5V CONTROL

DISC MOTOR DRIVER

CLOCK CONTROL

KARAOKE U (X25-5410-

CN1: EMP, D+5V, M-CLK, D-GND, BCK, DI, SDSY, BCO, DO, L/R, RESET, NC, NC

CN2: AUXR(I), FM(R), VR-GND, +5V, A-GND, -5V, FM(L), AUX(L), NC, MIC, NC, NC

MIC INPUT UNIT (X25-)(C/8)

J1 MIC1, J3 MIC CONTROL, J2 MIC2

WH7: MIC1, MIC2, GND, MIC SW

MIC AMP UNIT (X25-)(B/8)

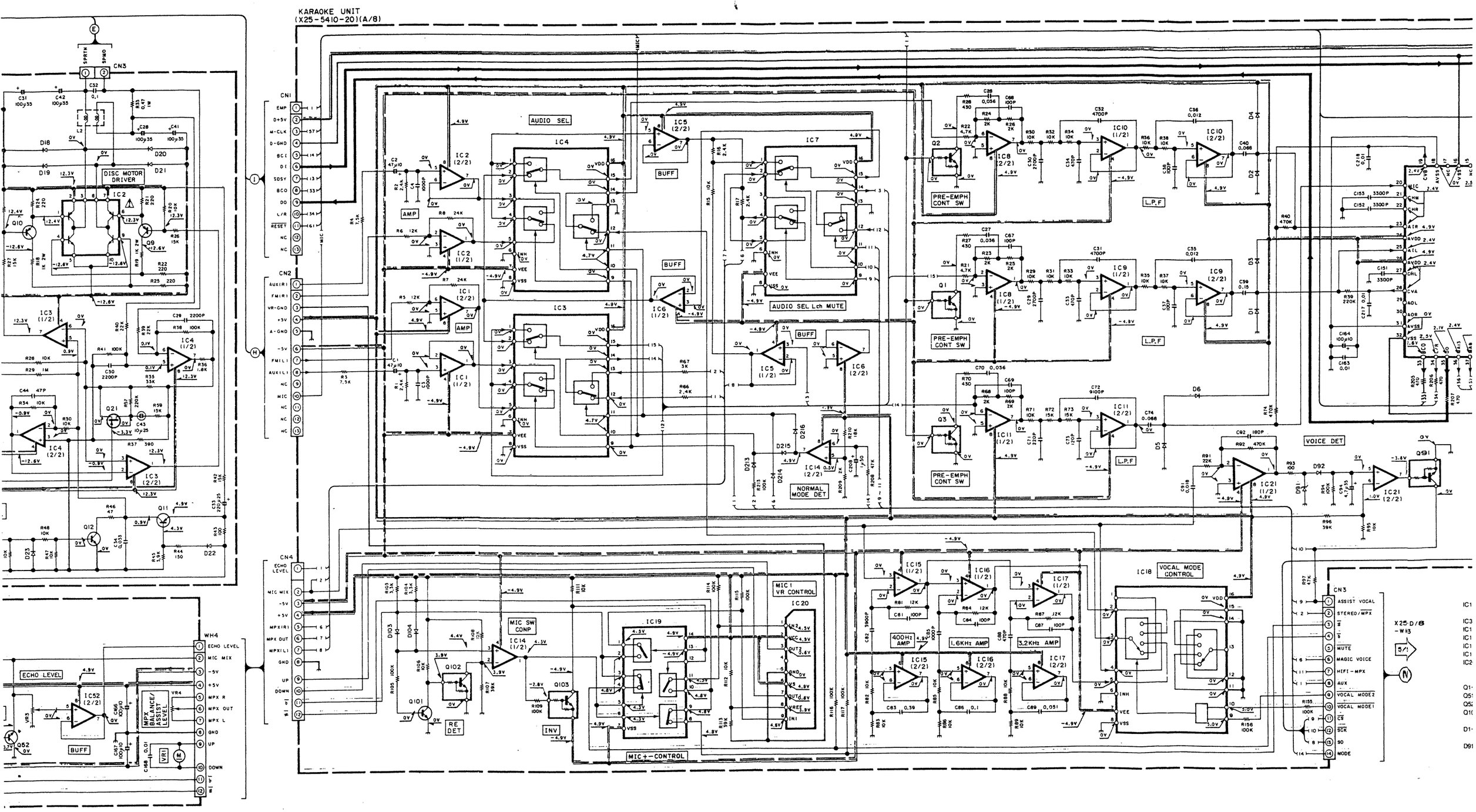
MIC1 AMP, MIC1 LEVEL, MIC2 AMP, MIC2 LEVEL, MIX, ECHO LEVEL, MIC MUTE, BUFF, MPX KARAOKE ASSIST LEVEL

WH4: ECHO LEVEL, MIC MIX, -5V, +5V, MPX R, MPX OUT, MPX L, GND, UP, DOWN, -8V, +8V

CN4: ECHO LEVEL, MIC MIX, -5V, +5V, MPX (R), MPX OUT, MPX (L), GND, UP, DOWN, -8V, +8V

IC1,4	: NJM4565D
IC2	: STA455C
IC3	: NJM2903D
IC5	: TC74HC04AP
Q1	: 2SA1534A(R,S)
Q2	: 2SC2003(L,K)
Q3,4	: 2SD1302(S,T)
Q5,16,17	: UN4112 or DTA124ES
Q6,15,20	: UN4212 or DTC124ES
Q7,13,19	: 2SD2374
Q8	: 2SA954(L,K)
Q9-11	: 2SA1309A(Q,R) or 2SA1048(Y,GR)
Q12	: 2SC3246
Q14,18	: 2SB1548
Q21	: 2SK163(L,M)
D1,2	: D3SBA20F03
D5,10,13,22,23,26,27	: ISS133 or HSS104
D7-9,24,25	: S5688B or 1SR139-100
D11,14	: RD5.6ES(B2) or HZS5.6N(B2)
D12	: RD30ES(B2) or HZS30N(B2)
D15-17	: RD5.1ES(B2) or HZS5.1N(B2)
D18-21	: ERA081-004

KARAOKE UNIT
(X25-5410-20)(A/8)



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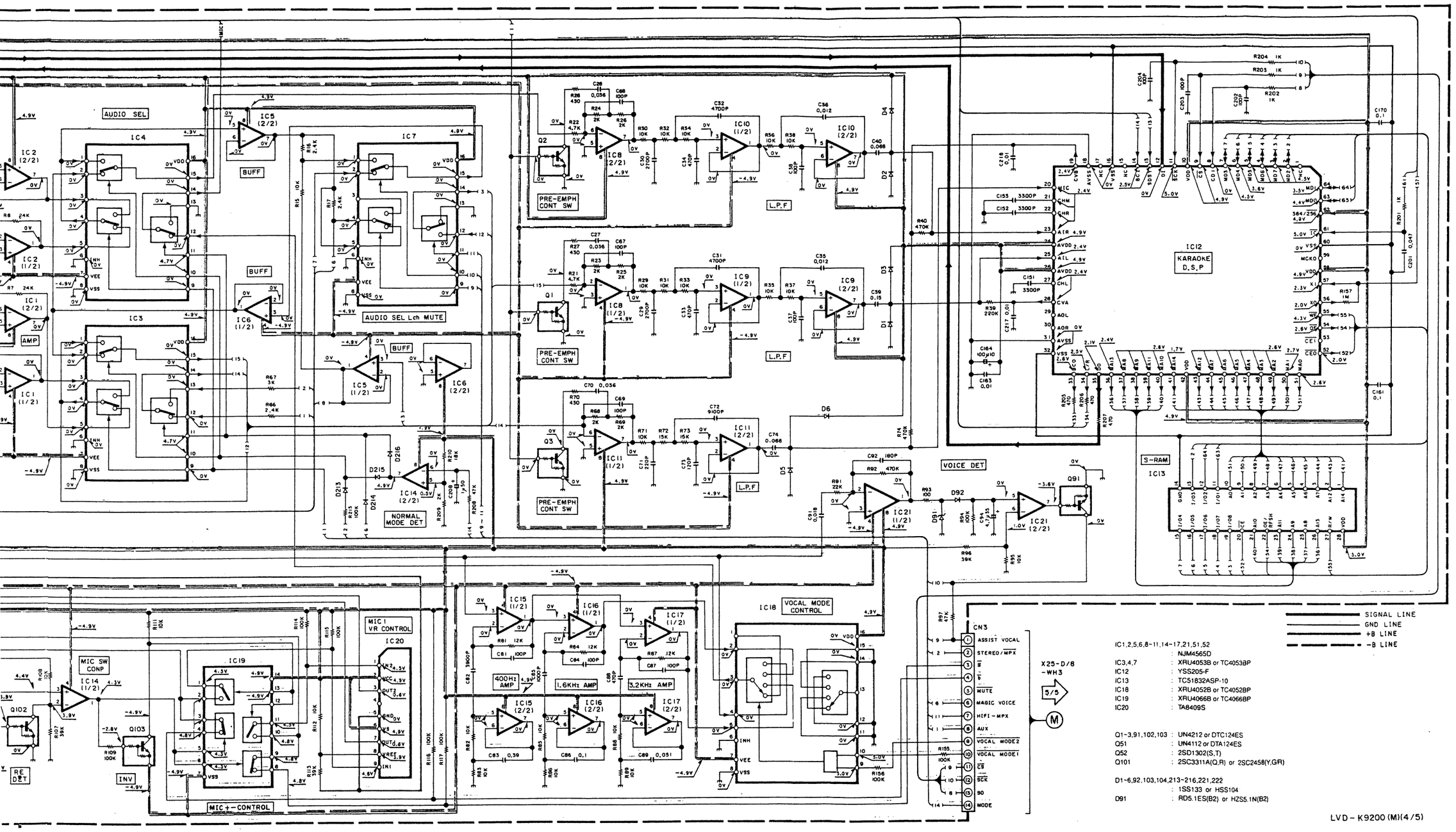

IC1,2,5,6,8-11,14-17,21,51,52 : NJM4565D
IC3,4,7 : XRU4053B or TC4053BP
IC12 : YSS205-F
IC13 : TC51832ASP-10
IC18 : XRU4052B or TC4052BP
IC19 : XRU4066B or TC4066BP
IC20 : TA8409S

Q1-3,91,102,103 : UN4212 or DTC124ES
Q51 : UN4112 or DTA124ES
Q52 : 2SD1302(S,T)
Q101 : 2SC3311A(Q,R) or 2SC2458(Y,GR)

D1-6,92,103,104,213-216,221,222 : 1SS133 or HSS104
D91 : RD5.1ES(B2) or HZS5.1N(B2)

LVD-K9200(M)(4/5)

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Y22-3430-00

LVD-K9200
KENWOOD

DQ DR DS DT DU DV DW DX DY DZ

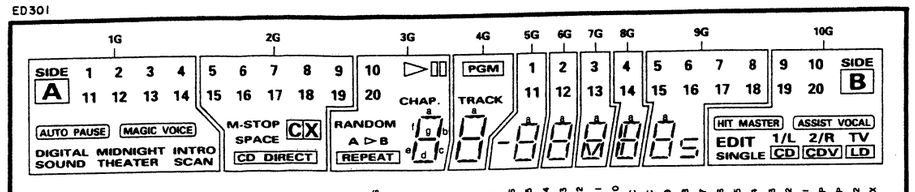
1 2 3 4 5 6 7

DISPLAY & SUB μ-COM UNIT (X25-5410-20)(D/8)

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G
P1	AUTO PAUSE	M-STOP	a	a	a	a	a	a	a	EDIT
P2	MAGIC VOICE	CX	b	b	b	b	b	b	b	1/L
P3	INTRO SCAN	SPACE	c	c	c	c	c	c	c	2/R
P4	MIDNIGHT THEATER	CD DIRECT	d	d	d	d	d	d	d	TV
P5	DIGITAL SOUND	–	e	e	e	e	e	e	e	LD
P6	–	–	f	f	f	f	f	f	f	CDV
P7	14	19	g	g	g	g	g	g	g	CD
P8	13	18	REPEAT	–	–	–	V	/	S	SINGLE
P9	12	17	B	TRACK	–	–	V	–	18	HIT MASTER
P10	11	16	A ▷	–	–	–	–	–	17	ASSIST VOCAL
P11	A	15	RANDOM	–	–	–	–	–	16	20
P12	SIDE	5	CHAP.	–	–	–	–	–	15	19
P13	1	6	20	–	–	–	–	–	5	9
P14	2	7	10	–	–	–	–	–	6	10
P15	3	8	▷	–	11	12	13	14	7	B
P16	4	9	▯▯	PGM	1	2	3	4	8	SIDE

ED301



GND LINE
+B LINE
-B LINE

IC301 : μ
IC302 : M
IC303 : T

Q301~303,310 : D
Q311 : 2

D301~303,309~31 :
D304~307 : E
D308,330 : E
D313~320,329 : E

A301 : V
ED301 : 1

MODE SW
AUX
NORMAL
KARAOKE
S342
R329 10K
R330 2.4K
R331 39K

Q310 Q303 Q302 Q301
R310 100K
R313 100K
R312 100K
R311 100K

IC303
VDD
VSS
0V
5.0V

IC301
SUB μ-COM

X301 4.194MHz

CP304 47K×4
CP305 47K×4

D310 D311 D304 D305 D306 D307 D309 Q311
D308 D330
R325 100
R326 100
R327 110
R328 150
R338 110
R339 110
R336 680
R335 680
D319 D318
C301 100μ/10

S343 OPEN
IC302 OUT IN GND
R322 47K
R323 47K
RESET

STAND-BY
D320
R337 680

D328 D327 D326 D325
R328 100
R327 100
R326 100
R325 100
R324 100
R323 100
R322 100
R321 4.7K

D301 D302 D303 D323 D322 D324 D312

KEY CON ♮ S304
ECHO MODE S309
SURROUND S315
SIDE A S314
KEY CON ♯ S303
STEREO /MPX S308
REQUEST S316
SIDE B S313
HIT MASTER S302
MAGIC VOICE S306
VOCAL MODE S311
ASSIST VOCAL S301
KEY CON ♭ S305
MEMORY S310
POWER S312
AUTO PAUSE S307

IC303 (1/6) IC303 (2/6) IC303 (3/6) IC303 (4/6)
R332 680
R333 680
R334 680
D314 D313 D316 D315 D329 D317

WH302 WH301 WH3

X35-B/2 -CN2 2/5 J
X35-A/2 -CN52 3/5 L
X25-A/8 -CN3 4/5 M

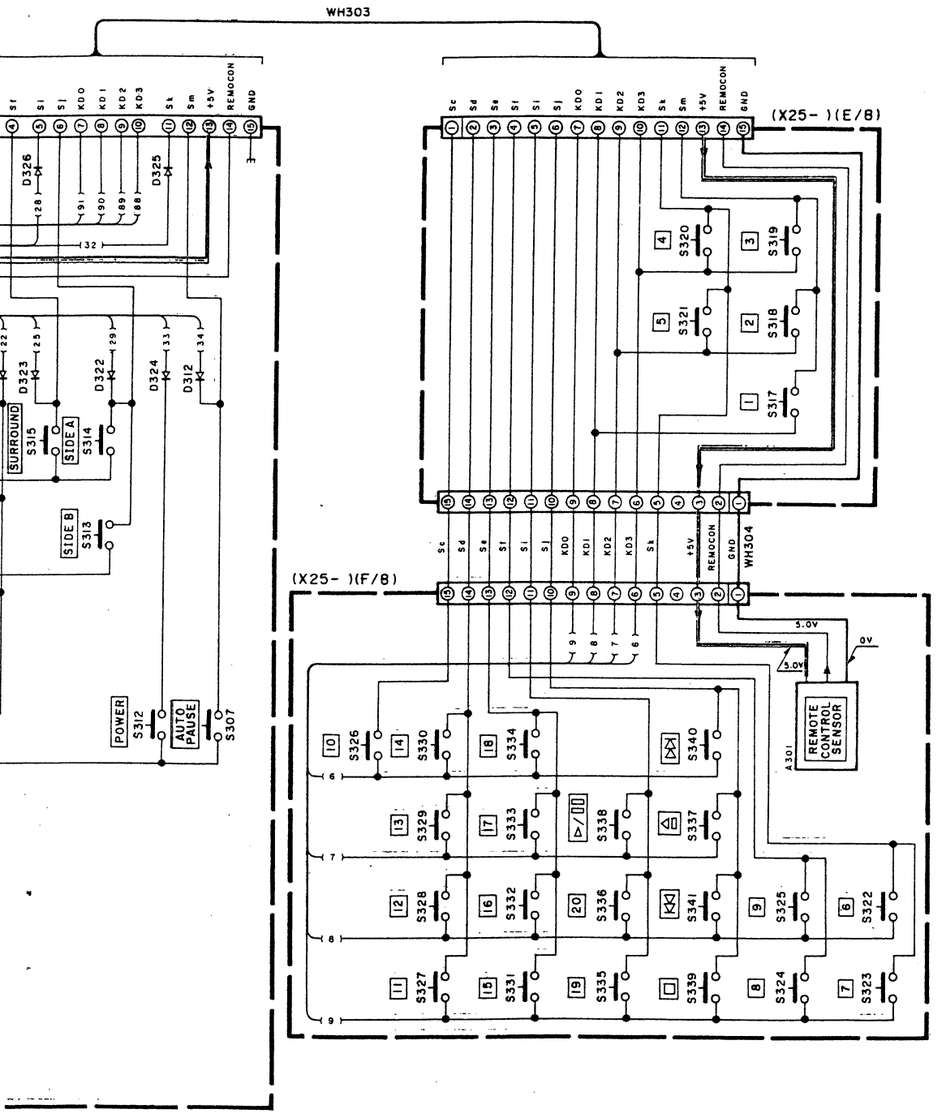
GND LINE
+B LINE
-B LINE

IC301 : μPD75238GJ-088
IC302 : MN1381-R(TA)
IC303 : TC74HC04AP

Q301~303,310 : DTC144TFF
Q311 : 2SC2458(Y,GR) or 2SC3311A(Q,R)

D301~303,309~312,322~328
: ISS133 or HSS104
D304~307 : B30-1080-05
D308,330 : B30-1288-05
D313~320,329 : B30-1290-05

A301 : W02-1046-05
ED301 : 10-BT-123GK



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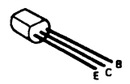
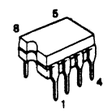
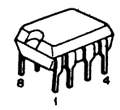
2SA1534A 2SC3246
2SA954 2SD1302
2SC1923
2SC2003
2SC2878



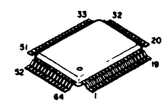
NJM4565D



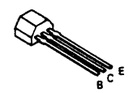
NJM4580D



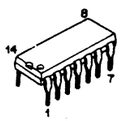
YSS205-F



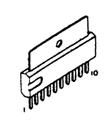
DTA124ES 2SA1048
DTC124ES 2SC2458
UN4112



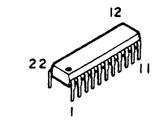
XRU4066B



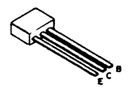
TA8410AK



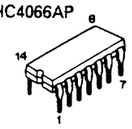
CXA1571S



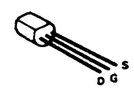
UN4212
2SA1309A
2SC3311A



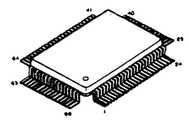
TC4066BP
TC74HCU04AP
TC74HC00AP
TC74HC04AP
TC74HC4066AP



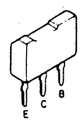
2SK163



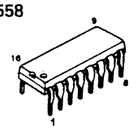
CXD2500BQ
YVL151C



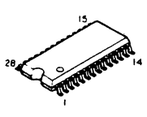
DTC144TFF



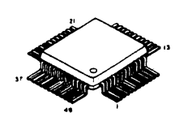
XRU4052B
XRU4053B
YM3558



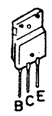
SM5872BS



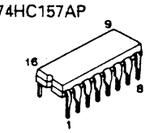
MC141621



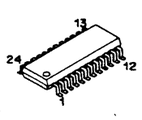
2SB1548
2SD2374



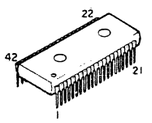
TC4052BP
TC4053BP
TC74HC157AP



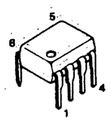
CA0002AM



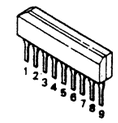
HA11529



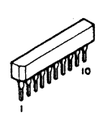
NJM2903D



TA8409S



STA455C

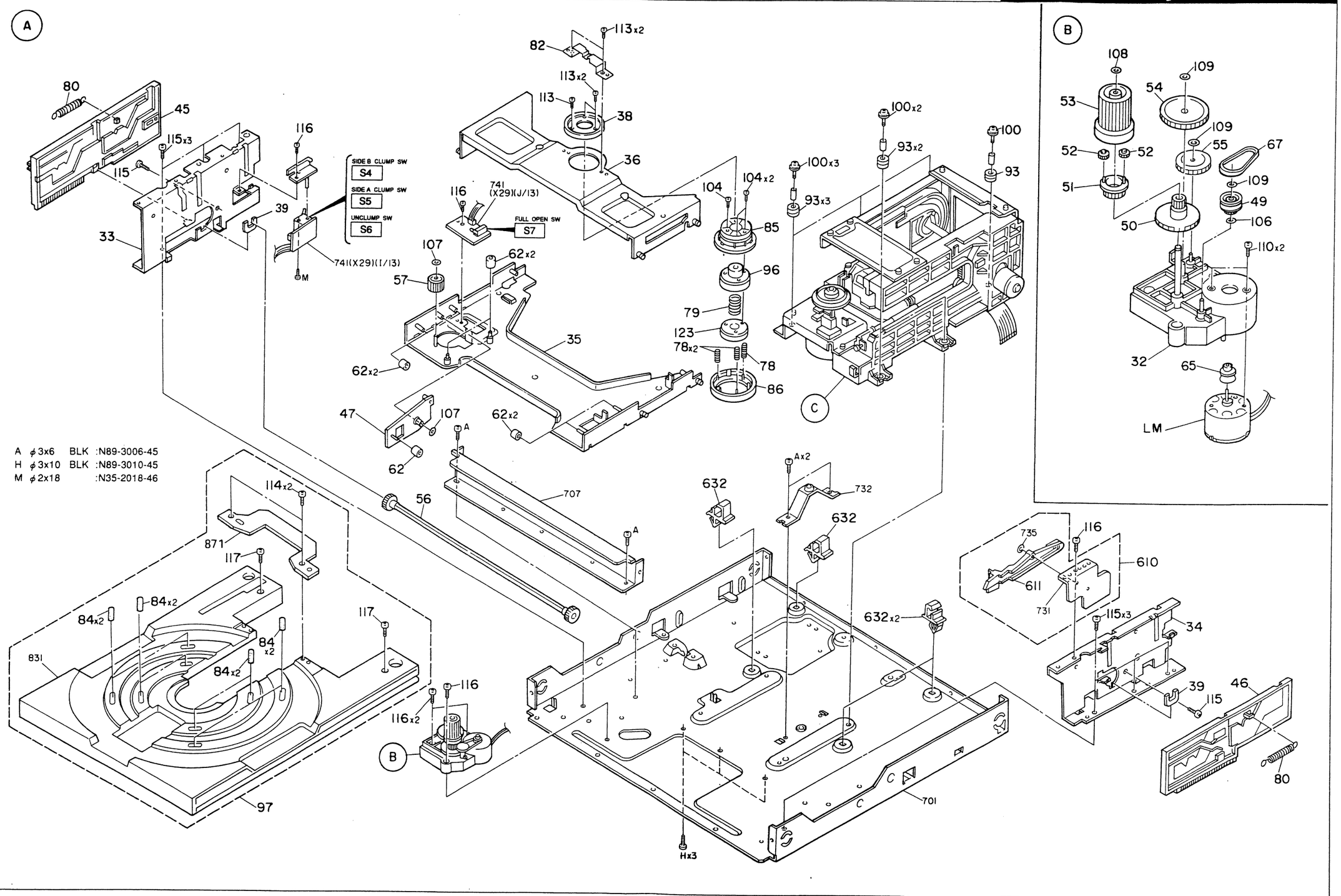


Y22-3430-00

LVD-K9 200
KENWOOD

LVD-K9200 LVD-K9200

EXPLODED VIEW (MECHANISM)

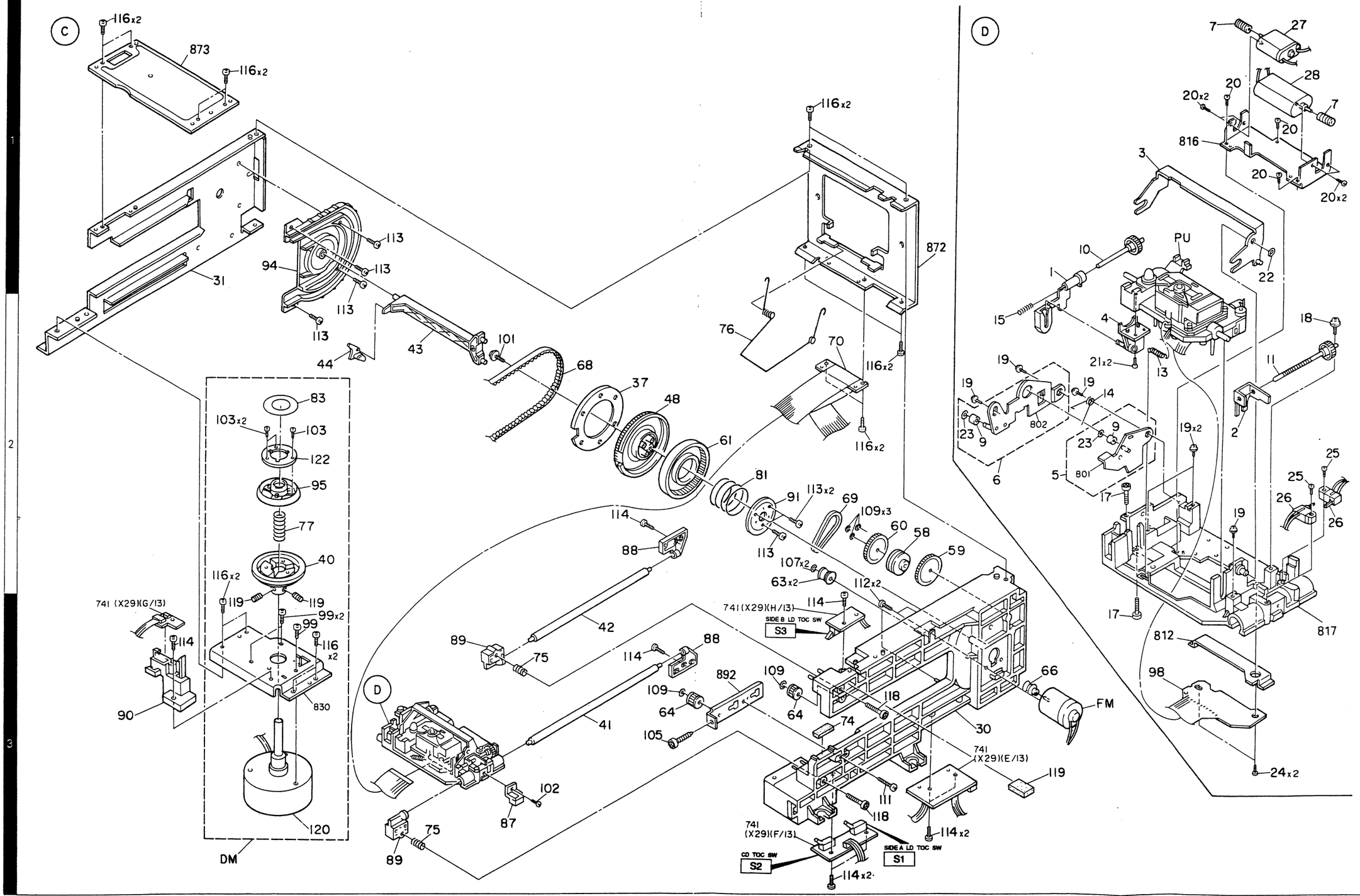


A φ3x6 BLK :N89-3006-45
H φ3x10 BLK :N89-3010-45
M φ2x18 :N35-2018-46

Parts with the exploded numbers larger than 700 are not supplied.

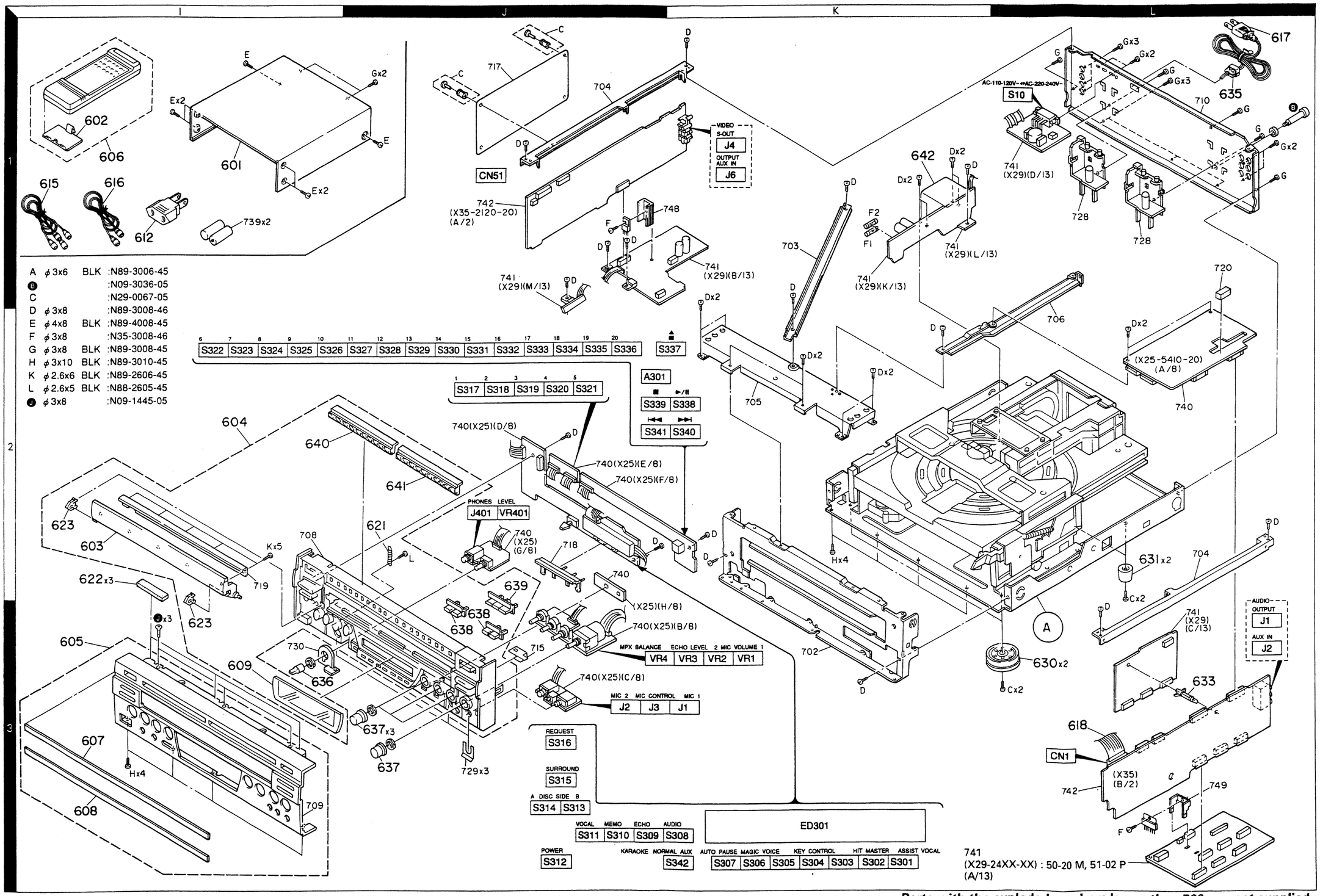
LVD-K9200 LVD-K9200

EXPLODED VIEW (MECHANISM)



Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW (UNIT)



A ϕ3x6 BLK :N89-3006-45
B :N09-3036-05
C :N29-0067-05
D ϕ3x8 :N89-3008-46
E ϕ4x8 BLK :N89-4008-45
F ϕ3x8 :N35-3008-46
G ϕ3x8 BLK :N89-3008-45
H ϕ3x10 BLK :N89-3010-45
K ϕ2.6x6 BLK :N89-2606-45
L ϕ2.6x5 BLK :N88-2605-45
J ϕ3x8 :N09-1445-05

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× New Parts
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Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

❶

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			LVD-K9200			
601	1I	*	A01-3057-01	METALLIC CABINET		
602	1I		A09-0114-08	BATTERY COVER		
603	2I	*	A21-1849-12	DRESSING PANEL		
604	2I	*	A22-1656-12	SUB PANEL ASSY		
605	3I	*	A60-0466-12	PANEL ASSY		
606	1I	*	A70-0945-05	REMOTE CONTROL UNIT:RC-LVDK900		
607	3I	*	B03-2859-03	DRESSING PLATE		
608	3I	*	B03-2860-03	DRESSING PLATE		
609	3I	*	B10-1995-04	FRONT GLASS		
-			B46-0121-33	WARRANTY CARD	P	
-		*	B58-0956-04	CAUTION CARD		
-		*	B58-0957-04	CAUTION CARD		
-		*	B60-1284-10	INSTRUCTION MANUAL(ENG,CHI)		
-		*	B60-1568-10	INSTRUCTION MANUAL(FRENCH)	P	
610	2D	*	D10-3423-14	ARM ASSY		
611	2D	*	D10-3424-14	ARM		
⚠ 612	1I		E03-0115-05	AC PLUG ADAPTOR	M	
615	1I		E30-0505-05	AUDIO CORD		
616	1I		E30-1427-05	VIDEO CORD		
⚠ 617	1L		E30-2592-15	AC POWER CORD	M	
⚠ 617	1L		E30-2650-05	AC POWER CORD	P	
618	3L	*	E35-0675-05	FLAT CABLE (27P)		
621	2J	*	G01-3613-04	EXTENSION SPRING		
622	2I		G11-0155-14	SOFT TAPE		
623	2I, 3I		G13-0182-04	CUSHION		
-		*	H10-5562-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-5563-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H11-0055-04	POLYSTYRENE FOAMED BOARD		
-			H20-0580-04	PROTECTION COVER	M	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0383-04	PROTECTION BAG	P	
-		*	H50-0735-14	ITEM CARTON CASE		
630	3L		J02-1002-05	FOOT (FRONT)		
631	2L		J02-1067-05	FOOT (REAR)		
632	2C, 3C		J19-3223-05	UNIT HOLDER		
633	3L		J19-3330-15	UNIT HOLDER		
⚠ 635	1L		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
636	3I		K29-4377-04	KNOB (PHONES LEVEL)		
637	3J	*	K29-5787-04	KNOB (MIC VOL.)		
638	3J	*	K29-5788-04	KNOB (MIX MASTER)		
639	2J	*	K29-5789-04	KNOB (*,B)		
640	2I	*	K29-5814-03	KNOB (1-10)		
641	2J	*	K29-5815-03	KNOB (11-20)		
⚠ 642	1K		L07-0350-05	POWER TRANSFORMER	P	
⚠ 642	1K		L07-0351-05	POWER TRANSFORMER	M	
~~N09-3006-45~~				BINDING HEAD TAPTITE SCREW		
^ B		*	N09-3036-05	STEPPED SCREW		

L:Scandinavia K:USA P:Canada R:Mexico
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⚠ indicates safety critical components.

× New Parts
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❷

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C			N29-0067-05	PUSH RIVET (3.5X4.5)		
D			N89-3008-46	BINDING HEAD TAPTITE SCREW		
E			N89-4008-45	BINDING HEAD TAPTITE SCREW		
F			N35-3008-46	BINDING HEAD MACHINE SCREW		
G			N89-3008-45	BINDING HEAD TAPTITE SCREW		
H			N89-3010-45	BINDING HEAD TAPTITE SCREW		
J			N09-1445-05	SET SCREW (M3X8)		
K			N89-2606-45	BINDING HEAD TAPTITE SCREW		
L			N88-2605-45	FLAT HEAD TAPTITE SCREW		
M			N35-2018-46	BINDING HEAD MACHINE SCREW		
			ELECTRIC UNIT (X25-5410-20)			
D304-307			B30-1080-05	LED		
D308			B30-1288-05	LED		
D313-320			B30-1290-05	LED		
D329			B30-1290-05	LED		
D330			B30-1288-05	LED		
C1 ,2			CE04KW1A470M	ELECTRO 47UF 10WV		
C3 ,4			CK45FB1H102K	CERAMIC 1000PF K		
C27 ,28			CF92FV1H363J	MF 0.036UF J		
C29 ,30			CF92FV1H272J	MF 2700PF J		
C31 ,32			CF92FV1H472J	MF 4700PF J		
C33 ,34			CK45FB1H471K	CERAMIC 470PF K		
C35 ,36			CF92FV1H123J	MF 0.012UF J		
C37 ,38			CC45FSL1H101J	CERAMIC 100PF J		
C39			CF92FV1H154J	MF 0.15UF J		
C40			CF92FV1H683J	MF 0.068UF J		
C51 ,52			CF92FV1H472J	MF 4700PF J		
C53 ,54			CE04KW1H0R1M	ELECTRO 0.1UF 50WV		
C57 ,58			CC45FSL1H121J	CERAMIC 120PF J		
C61			CF92FV1H823J	MF 0.082UF J		
C62			CC45FSL1H560J	CERAMIC 56PF J		
C67 -69			CC45FSL1H101J	CERAMIC 100PF J		
C70			CF92FV1H363J	MF 0.036UF J		
C71			CC45FSL1H221J	CERAMIC 220PF J		
C72			CF92FV1H912J	MF 9100PF J		
C73			CC45FSL1H121J	CERAMIC 120PF J		
C74			CF92FV1H683J	MF 0.068UF J		
C81			CC45FSL1H101J	CERAMIC 100PF J		
C82			CF92FV1H392J	MF 3900PF J		
C83			CF92FV1H394J	MF 0.39UF J		
C84			CC45FSL1H101J	CERAMIC 100PF J		
C85			CK45FB1H102K	CERAMIC 1000PF K		
C86			CF92FV1H104J	MF 0.10UF J		
C87			CC45FSL1H101J	CERAMIC 100PF J		
C88			CK45FB1H471K	CERAMIC 470PF K		
C89			CF92FV1H513J	MF 0.051UF J		
C91			CF92FV1H183J	MF 0.018UF J		
C92			CC45FSL1H181J	CERAMIC 180PF J		
C94			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C101,102			CK45FF1H103Z	CERAMIC 0.010UF Z		
C151-153			CF92FV1H332J	MF 3300PF J		
C161			CF92FV1H104J	MF 0.10UF J		
C163			CK45FF1H103Z	CERAMIC 0.010UF Z		
C164			CE04KW1A101M	ELECTRO 100UF 10WV		
C166,167			CE04KW1A101M	ELECTRO 100UF 10WV		

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❸

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C168			CK45FF1H103Z	CERAMIC 0.010UF Z		
C170			CF92FV1H104J	MF 0.10UF J		
C201			CF92FV1H473J	MF 0.047UF J		
C202-204			CC45FSL1H101J	CERAMIC 100PF J		
C208			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C217,218			CK45FF1H103Z	CERAMIC 0.010UF Z		
C221			CK45FF1H103Z	CERAMIC 0.010UF Z		
C301			CE04KW1A101M	ELECTRO 100UF 10WV		
C401,402			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C403,404			CE04KW1A101M	ELECTRO 100UF 10WV		
C405			CK45FF1H103Z	CERAMIC 0.010UF Z		
C412,413			CK45FF1H103Z	CERAMIC 0.010UF Z		
J1 ,2	3J		E11-0224-05	PHONE JACK (MIC)		
J3	3J		E11-0218-05	MINIATURE PHONE JACK(MIC CONT)		
J401	2J		E11-0190-05	PHONE JACK (PHONES)		
X301			L78-0267-05	RESONATOR (4.194MHz)		
CP304			R90-0804-05	MULTI-COMP 47KX8 J 1/4W		
CP305			R90-0487-05	MULTI-COMP 47KX4 J 1/6W		
VR1	3K		R29-3033-05	POTENTIOMETER (MIC VOLUME)		
VR2 -4	3J,3K		R01-3055-05	POTENTIOMETER (ECHO LEVEL)		
VR401	2J		R10-4041-05	POTENTIOMETER (LEVEL)		
S301-307	3K		S70-0802-05	TACT SWITCH		
S308-341	2J,3J		S40-1064-05	PUSH SWITCH		
S342	3K		S31-1036-05	SLIDE SWITCH(AUX/NORMAL/KARA)		
S343			S40-1139-05	PUSH SWITCH (OPEN SW)		
D1 -6			HSS104	DIODE		
D1 -6			1SS133	DIODE		
D91			HZS5.1N(B2)	ZENER DIODE		
D91			RD5.1ES(B2)	ZENER DIODE		
D92			HSS104	DIODE		
D92			1SS133	DIODE		
D103,104			HSS104	DIODE		
D103,104			1SS133	DIODE		
D213-216			HSS104	DIODE		
D213-216			1SS133	DIODE		
D221,222			HSS104	DIODE		
D221,222			1SS133	DIODE		
D301-303			HSS104	DIODE		
D301-303			1SS133	DIODE		
D309-312			HSS104	DIODE		
D309-312			1SS133	DIODE		
D322-328			HSS104	DIODE		
D322-328			1SS133	DIODE		
D401,402			HSS104	DIODE		
D401,402			1SS133	DIODE		
ED301	3K	*	10-BT-123GK	INDICATOR TUBE		
IC1 ,2			NJM4565D	IC(OP AMP X2)		
IC3 ,4			TC4053BP	IC(3-INPUT 2CH MPX/DE-MPX)		
IC3 ,4			XRU4053B	IC(ANALOG MULTIPLEXER)		
IC5 ,6			NJM4565D	IC(OP AMP X2)		
IC7			TC4053BP	IC(3-INPUT 2CH MPX/DE-MPX)		
IC7			XRU4053B	IC(ANALOG MULTIPLEXER)		
IC8 -11			NJM4565D	IC(OP AMP X2)		

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❹

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
IC12			YSS205-F	IC(SIGNALPROCESSOR FOR KARAOKE		
IC13			TC51832ASP-10	IC(S-RAM)		
IC14-17			NJM4565D	IC(OP AMP X2)		
IC18			TC4052BP	IC(4CH MPX/DE-MPX)		
IC18			XRU4052B	IC(MULTIPLEXER/DEMULTIPLEXER)		
IC19			TC4066BP	IC(ANALOG/ DIGITAL SW)		
IC19			XRU4066B	IC(ANALOG SWITCH)		
IC20			TA8409S	IC(MOTOR CONTROL)		
IC21			NJM4565D	IC(OP AMP X2)		
IC51,52			NJM4565D	IC(OP AMP X2)		
IC301		*	UPD75238GJ-088	IC(4 bit MICROPROCESSOR)		
IC302			MN1381-R(TA)	IC(VOLTAGE DETECT)		
IC303			TC74HC04AP	IC(HEX INVERTER)		
IC401			NJM4580D	IC(OP AMP X2)		
Q1 -3			DTC124ES	DIGITAL TRANSISTOR		
Q1 -3			UN4212	DIGITAL TRANSISTOR		
Q51			DTA124ES	DIGITAL TRANSISTOR		
Q51			UN4112	DIGITAL TRANSISTOR		
Q52			2SD1302(S,T)	TRANSISTOR		
Q91			DTC124ES	DIGITAL TRANSISTOR		
Q91			UN4212	DIGITAL TRANSISTOR		
Q101			2SC2458(Y,GR)	TRANSISTOR		
Q101			2SC3311A(Q,R)	TRANSISTOR		
Q102,103			DTC124ES	DIGITAL TRANSISTOR		
Q102,103			UN4212	DIGITAL TRANSISTOR		
Q301-303			DTC144TFF	DIGITAL TRANSISTOR		
Q310			DTC144TFF	DIGITAL TRANSISTOR		
Q311			2SC2458(Y,GR)	TRANSISTOR		
Q311			2SC3311A(Q,R)	TRANSISTOR		
A301	2J		W02-1046-05	ELECTRIC CIRCUIT MODULE		
CONTROL CIRCUIT UNIT (X29-245X-XX) 0-20 : M, 1-02 : P						
⚠ C1 ,2			C91-0971-05	FILM 0.01UF 250WV		P
⚠ C1 ,2		*	C91-1488-05	MF 6800PF 250VAC		M
C3			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C4 -6			CK45FF1H103Z	CERAMIC 0.010UF Z		
C7			CE04KW1C332M	ELECTRO 3300UF 16WV		
C8			CE04KW1C472M	ELECTRO 4700UF 16WV		
C10 -12			CE04KW1E221M	ELECTRO 220UF 25WV		
C13			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C14			CK45FF1H103Z	CERAMIC 0.010UF Z		
C15			CE04DW1V221M	ELECTRO 220UF 35WV		
C16 ,17			CE04KW1C470M	ELECTRO 47UF 16WV		
C18 ,19			CE04KW1E332M	ELECTRO 3300UF 25WV		
C20 -22			CE04KW1A470M	ELECTRO 47UF 10WV		
C23			CK45FF1H103Z	CERAMIC 0.010UF Z		
C24			CK45FB1H102K	CERAMIC 1000PF K		
C25			CE04KW1E470M	ELECTRO 47UF 25WV		
C26 ,27			CK45FB1H102K	CERAMIC 1000PF K		
C28			CE04KW1V101M	ELECTRO 100UF 35WV		
C29 ,30			CK45FB1H222K	CERAMIC 2200PF K		
C31			CE04KW1V101M	ELECTRO 100UF 35WV		
C32			CF92FV1H104J	MF 0.10UF J		
C33			CE04KW1E221M	ELECTRO 220UF 25WV		
C34			CF92FV1H333J	MF 0.033UF J		

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C35			CC45FSL1H331J	CERAMIC	330PF J		
C36			CK45FF1H103Z	CERAMIC	0.010UF Z		
C37			CF92FV1H102J	MF	1000PF J		
C38			CC45FSL1H101J	CERAMIC	100PF J		
C39			CK45FF1H103Z	CERAMIC	0.010UF Z		
C40			CE04KW1E471M	ELECTRO	470UF 25WV		
C41 ,42			CE04KW1V101M	ELECTRO	100UF 35WV		
C43			CE04HW1E100M	NP-ELEC	10UF 25WV		
C44			CC45FSL1H470J	CERAMIC	47PF J		
C100			CE04KW1A101M	ELECTRO	100UF 10WV		
C101			CF92FV1H102J	MF	1000PF J		
C102			CE04KW1V100M	ELECTRO	10UF 35WV		
C103,104			CF92FV1H103J	MF	0.010UF J		
C105,106			CF92FV1H104J	MF	0.10UF J		
C107			CE04KW1V100M	ELECTRO	10UF 35WV		
C108			CE04KW1H010M	ELECTRO	1.0UF 50WV		
C109,110			CF92FV1H104J	MF	0.10UF J		
C111			CC45FSL1H101J	CERAMIC	100PF J		
C112			CF92FV1H104J	MF	0.10UF J		
C113			CC45FSL1H121J	CERAMIC	120PF J		
C114			CF92FV1H104J	MF	0.10UF J		
C115			CC45FSL1H101J	CERAMIC	100PF J		
C116,117			CF92FV1H104J	MF	0.10UF J		
C118,119			CE04KW1E101M	ELECTRO	100UF 25WV		
C151			CF92FV1H152J	MF	1500PF J		
C152			CF92FV1H392J	MF	3900PF J		
C153			CF92FV1H224J	MF	0.22UF J		
C154			CE04HW1E100M	NP-ELEC	10UF 25WV		
C155			CF92FV1H104J	MF	0.10UF J		
C156			CC45FSL1H221J	CERAMIC	220PF J		
C157			CF92FV1H154J	MF	0.15UF J		
C158			CK45FB1H561K	CERAMIC	560PF K		
C159			CF92FV1H472J	MF	4700PF J		
C160			CF92FV1H153J	MF	0.015UF J		
C161			CE04KW1H010M	ELECTRO	1.0UF 50WV		
C162			CE04HW1E100M	NP-ELEC	10UF 25WV		
C163			CF92FV1H104J	MF	0.10UF J		
C164			CE04KW1H010M	ELECTRO	1.0UF 50WV		
C165			CE04KW1V100M	ELECTRO	10UF 35WV		
C166			CF92FV1H104J	MF	0.10UF J		
C167			CF92FV1H473J	MF	0.047UF J		
C168			CE04KW1V100M	ELECTRO	10UF 35WV		
C169			CF92FV1H103J	MF	0.010UF J		
C170			CC45FSL1H221J	CERAMIC	220PF J		
C171			CE04HW1E100M	NP-ELEC	10UF 25WV		
C172			CE04KW1H010M	ELECTRO	1.0UF 50WV		
C173			CE04HW1A470M	NP-ELEC	47UF 10WV		
C174			CE04KW1V100M	ELECTRO	10UF 35WV		
C175			CF92FV1H102J	MF	1000PF J		
C176			CE04HW1H010M	NP-ELEC	1.0UF 50WV		
C177			CF92FV1H103J	MF	0.010UF J		
C178			CE04KW1C220M	ELECTRO	22UF 16WV		
C179			CF92FV1H104J	MF	0.10UF J		
C180-183			CC45FSL1H101J	CERAMIC	100PF J		
C184			CE04KW1H3R3M	ELECTRO	3.3UF 50WV		

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C185			CC45FSL1H101J	CERAMIC	100PF J		
C186			CF92FV1H473J	MF	0.047UF J		
C187			CF92FV1H472J	MF	4700PF J		
C188			CF92FV1H223J	MF	0.022UF J		
C189			CE04KW1V100M	ELECTRO	10UF 35WV		
C190			CF92FV1H224J	MF	0.22UF J		
⚠ F1 ,2			F05-2525-05	FUSE (SEMKO)	(250V T2.5A)	M	
⚠ F1 ,2			F06-2525-05	FUSE (UL)	(250V 2.5A)	P	
CN6 -9			J13-0075-05	FUSE CLIP			
⚠ L1			L79-0733-05	LINE FILTER			
L2			L33-0374-05	CHOKE COIL			
L10			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)			
L11			L40-1031-46	SMALL FIXED INDUCTOR(10mH,K)			
⚠ R2			RD14GB2E220J	FL-PROOF RD	22 J 1/4W		
⚠ R14			RS14KB3A220J	FL-PROOF RS	22 J 1W		
R18 ,19			RS14KB3D102J	FL-PROOF RS	1.0K J 2W		
R33			RS14KB3AR47J	FL-PROOF RS	0.47 J 1W		
⚠ R60 ,61			RD14GB2E1R0J	FL-PROOF RD	1.0 J 1/4W		
VR1			R12-3127-05	TRIMMING POT.(10K)<FOCUS BAL>			
VR2			R12-3129-05	TRIMMING POT.(22K)<TE BAL>			
VR3			R12-5059-05	TRIMMING POT.(100K)<TILT BAL>			
VR4 ,5			R12-3127-05	TRIMMING POT.(10K)<TE,FE GAIN>			
S1 ,2	3G		S33-1017-05	LEVER SWITCH			
S3	3G		S64-0006-05	LEVER SWITCH			
S4 -7	1B		S33-1017-05	LEVER SWITCH			
⚠ S10	1L		S62-0001-05	SLIDE SWITCH(VOLTAGE SELECTOR)		M	
PH1			T95-0048-05	OPTO ISOLATOR			
⚠ D1 ,2			D3SBA20F03	DIODE			
D5			HSS104	DIODE			
D5			1SS133	DIODE			
D7 -9			S5688B	DIODE			
D7 -9			1SR139-100	DIODE			
D10			HSS104	DIODE			
D10			1SS133	DIODE			
D11			HZS5.6N(B2)	ZENER DIODE			
D11			RD5.6ES(B2)	ZENER DIODE			
D12			HZS30N(B2)	ZENER DIODE			
D12			RD30ES(B2)	ZENER DIODE			
D13			HSS104	DIODE			
D13			1SS133	DIODE			
D14			HZS5.6N(B2)	ZENER DIODE			
D14			RD5.6ES(B2)	ZENER DIODE			
D15 -17			HZS5.1N(B2)	ZENER DIODE			
D15 -17			RD5.1ES(B2)	ZENER DIODE			
D18 -21			ERA081-004	DIODE			
D22 ,23			HSS104	DIODE			
D22 ,23			1SS133	DIODE			
D24 ,25			S5688B	DIODE			
D24 ,25			1SR139-100	DIODE			
D26 ,27			HSS104	DIODE			
D26 ,27			1SS133	DIODE			
D51			HSS104	DIODE			

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D51			1SS133	DIODE		
D53			HSS104	DIODE		
D53			1SS133	DIODE		
D54			HZS6.8N(B)	ZENER DIODE		
D54			RD6.8ES(B)	ZENER DIODE		
D56 ,57			HSS104	DIODE		
D56 ,57			1SS133	DIODE		
D58 ,59			S5688B	DIODE		
D58 ,59			1SR139-100	DIODE		
D60 -65			HSS104	DIODE		
D60 -65			1SS133	DIODE		
IC1			NJM4565D	IC(OP AMP X2)		
IC2			STA455C	IC(TRANSISTOR ARRAY)		
IC3			NJM2903D	IC(DUAL COMPARATOR)		
IC4			NJM4565D	IC(OP AMP X2)		
IC5			TC74HC04AP	IC(HEX INVERTER)		
IC10			NJM4565D	IC(OP AMP X2)		
IC11			CXA1571S	IC(CD RF AMP)		
IC12			NJM4565D	IC(OP AMP X2)		
IC13-15			TA8410AK	IC(POWER OP AMP)		
IC16-19			NJM4565D	IC(OP AMP X2)		
IC20			HA11529	IC(CD/LD SERVO IC)		
IC21			NJM4565D	IC(OP AMP X2)		
IC22			NJM2903D	IC(DUAL COMPARATOR)		
⚠ Q1			2SA1534A(R,S)	TRANSISTOR		
⚠ Q2			2SC2003(L,K)	TRANSISTOR		
Q3 ,4			2SD1302(S,T)	TRANSISTOR		
Q5			DTA124ES	DIGITAL TRANSISTOR		
Q5			UN4112	DIGITAL TRANSISTOR		
Q6			DTC124ES	DIGITAL TRANSISTOR		
Q6			UN4212	DIGITAL TRANSISTOR		
⚠ Q7			2SD2374	TRANSISTOR		
⚠ Q8			2SA954(L,K)	TRANSISTOR		
Q9 -11			2SA1048(Y,GR)	TRANSISTOR		
Q9 -11			2SA1309A(Q,R)	TRANSISTOR		
Q12			2SC3246	TRANSISTOR		
⚠ Q13			2SD2374	TRANSISTOR		
⚠ Q14			2SB1548	TRANSISTOR		
Q15			DTC124ES	DIGITAL TRANSISTOR		
Q15			UN4212	DIGITAL TRANSISTOR		
Q16 ,17			DTA124ES	DIGITAL TRANSISTOR		
Q16 ,17			UN4112	DIGITAL TRANSISTOR		
⚠ Q18			2SB1548	TRANSISTOR		
⚠ Q19			2SD2374	TRANSISTOR		
Q20			DTC124ES	DIGITAL TRANSISTOR		
Q20			UN4212	DIGITAL TRANSISTOR		
Q21			2SK163(L,M)	FET		
Q50			2SA954(L,K)	TRANSISTOR		
Q51			2SC2458(Y,GR)	TRANSISTOR		
Q51			2SC3311A(Q,R)	TRANSISTOR		
Q52			DTA124ES	DIGITAL TRANSISTOR		
Q52			UN4112	DIGITAL TRANSISTOR		
Q53			DTC124ES	DIGITAL TRANSISTOR		
Q53			UN4212	DIGITAL TRANSISTOR		
Q54			DTA124ES	DIGITAL TRANSISTOR		

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Q54			UN4112	DIGITAL TRANSISTOR		
Q55 -57			2SK163(L,M)	FET		
Q58			DTA124ES	DIGITAL TRANSISTOR		
Q58			UN4112	DIGITAL TRANSISTOR		
Q59			DTC124ES	DIGITAL TRANSISTOR		
Q59			UN4212	DIGITAL TRANSISTOR		
Q60 ,61			DTA124ES	DIGITAL TRANSISTOR		
Q60 ,61			UN4112	DIGITAL TRANSISTOR		
Q62			DTC124ES	DIGITAL TRANSISTOR		
Q62			UN4212	DIGITAL TRANSISTOR		
Q63			DTA124ES	DIGITAL TRANSISTOR		
Q63			UN4112	DIGITAL TRANSISTOR		
Q70			2SK163(L,M)	FET		
Q71 ,72			DTC124ES	DIGITAL TRANSISTOR		
Q71 ,72			UN4212	DIGITAL TRANSISTOR		
Q73 ,74			DTA124ES	DIGITAL TRANSISTOR		
Q73 ,74			UN4112	DIGITAL TRANSISTOR		
Q75 ,76			2SK163(L,M)	FET		
VIDEO UNIT (X35-2120-20)						
C1			CC45FSL1H220J	CERAMIC 22PF J		
C2			CC45FSL1H820J	CERAMIC 82PF J		
C3			CC45FSL1H220J	CERAMIC 22PF J		
C4			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C5			CF92FV1H104J	MF 0.10UF J		
C6			CC45FSL1H121J	CERAMIC 120PF J		
C7			CF92FV1H561J	MF 560PF J		
C8			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C9			CF92FV1H392J	MF 3900PF J		
C10			CK45FB1H182K	CERAMIC 1800PF K		
C11			CF92FV1H334J	MF 0.33UF J		
C12			CE04KW1V100M	ELECTRO 10UF 35WV		
C14			CC45FSL1H270J	CERAMIC 27PF J		
C16			CE04KW1A470M	ELECTRO 47UF 10WV		
C17			CC45FSL1H680J	CERAMIC 68PF J		
C18			CC45FSL1H221J	CERAMIC 220PF J		
C19			CC45FSL1H151J	CERAMIC 150PF J		
C20			CC45FSL1H680J	CERAMIC 68PF J		
C21			CE04KW1A220M	ELECTRO 22UF 10WV		
C22			CK45FF1H103Z	CERAMIC 0.010UF Z		
C23			CF92FV1H153J	MF 0.015UF J		
C24 ,25			CF92FV1H473J	MF 0.047UF J		
C26 ,27			CK45FF1H103Z	CERAMIC 0.010UF Z		
C29			CK45FF1H103Z	CERAMIC 0.010UF Z		
C31			CE04KW1V100M	ELECTRO 10UF 35WV		
C32 ,33			CK45FF1H103Z	CERAMIC 0.010UF Z		
C34 ,35			CE04KW1A101M	ELECTRO 100UF 10WV		
C36 -38			CF92FV1H223J	MF 0.022UF J		
C39 -42			CK45FF1H472Z	CERAMIC 4700PF Z		
C43 ,44			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C45 ,46			CF92FV1H393J	MF 0.039UF J		
C47			CF92FV1H104J	MF 0.10UF J		
C48			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C49			CE04HW1E100M	NP-ELEC 10UF 25WV		
C50 ,51			CF92FV1H334J	MF 0.33UF J		

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C52 -54			CE04KW1A101M	ELECTRO	100UF	10WV		
C55			CF92FV1H104J	MF	0.10UF	J		
C56			CF92FV1H473J	MF	0.047UF	J		
C57			CF92FV1H152J	MF	1500PF	J		
C58			CE04KW1A101M	ELECTRO	100UF	10WV		
C59			CF92FV1H104J	MF	0.10UF	J		
C60			CF92FV1H103J	MF	0.010UF	J		
C62			CF92FV1H473J	MF	0.047UF	J		
C63			CE04HW1A220M	NP-ELEC	22UF	10WV		
C64			CE04HW1H010M	NP-ELEC	1.0UF	50WV		
C65			CE04KW1V100M	ELECTRO	10UF	35WV		
C66			CC45FSL1H470J	CERAMIC	47PF	J		
C67 ,68			CK45FF1H472Z	CERAMIC	4700PF	Z		
C69			CF92FV1H104J	MF	0.10UF	J		
C70			CE04KW1A101M	ELECTRO	100UF	10WV		
C71 ,72			CE04KW1A221M	ELECTRO	220UF	10WV		
C73 ,74			CE04KW1C101M	ELECTRO	100UF	16WV		
C75 ,76			CF92FV1H104J	MF	0.10UF	J		
C77 ,78			CE04KW1A221M	ELECTRO	220UF	10WV		
C79 ,80			CF92FV1H101K	MF	100PF	K		
C81 ,82			CF92FV1H561J	MF	560PF	J		
C83 ,84			CF92FV1H101K	MF	100PF	K		
C85 ,86			CF92FV1H103J	MF	0.010UF	J		
C87 ,88			CF92FV1H153J	MF	0.015UF	J		
C89 ,90			CF92FV1H561J	MF	560PF	J		
C91 ,92			CE04KW1V100M	ELECTRO	10UF	35WV		
C94 ,95			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C96 ,97			CE04KW1V100M	ELECTRO	10UF	35WV		
C98			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C164			CF92FV1H104J	MF	0.10UF	J		
C165			CE04KW1A101M	ELECTRO	100UF	10WV		
C166			CF92FV1H104J	MF	0.10UF	J		
C167			CC45FSL1H121J	CERAMIC	120PF	J		
C168			CK45FB1H102K	CERAMIC	1000PF	K		
C170			CF92FV1H101K	MF	100PF	K		
C219			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C220,221			CC45FSL1H121J	CERAMIC	120PF	J		
C222			CC45FSL1H331J	CERAMIC	330PF	J		
C223			CC45FSL1H221J	CERAMIC	220PF	J		
C224			CC45FSL1H150J	CERAMIC	15PF	J		
C225			CC45FSL1H470J	CERAMIC	47PF	J		
C226			CC45FSL1H150J	CERAMIC	15PF	J		
C229,230			CF92FV1H104J	MF	0.10UF	J		
C233			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C234			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C235			CE04KW1A470M	ELECTRO	47UF	10WV		
C236			CC45FSL1H560J	CERAMIC	56PF	J		
C237			CF92FV1H104J	MF	0.10UF	J		
C238			CC45FSL1H220J	CERAMIC	22PF	J		
C246			CF92FV1H104J	MF	0.10UF	J		
C247,248			CF92FV1H332J	MF	3300PF	J		
C249			CF92FV1H104J	MF	0.10UF	J		
C250			CF92FV1H103J	MF	0.010UF	J		
C251			CC45FSL1H100D	CERAMIC	10PF	D		
C253,254			CC45FSL1H470J	CERAMIC	47PF	J		

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C255,256			CC45FSL1H100D	CERAMIC	10PF	D		
C257			CE04KW1A470M	ELECTRO	47UF	10WV		
C258			CF92FV1H683J	MF	0.068UF	J		
C259			CF92FV1H222J	MF	2200PF	J		
C260			CF92FV1H103J	MF	0.010UF	J		
C261			CC45FSL1H100D	CERAMIC	10PF	D		
C262			CC45FSL1H220J	CERAMIC	22PF	J		
C263			CC45FSL1H100D	CERAMIC	10PF	D		
C264			CC45FSL1H150J	CERAMIC	15PF	J		
C265			CF92FV1H103J	MF	0.010UF	J		
C266			CE04HW1H3R3M	NP-ELEC	3.3UF	50WV		
C267			CF92FV1H223J	MF	0.022UF	J		
C268			CE04HW1H010M	NP-ELEC	1.0UF	50WV		
C269			CE04HW1H2R2M	NP-ELEC	2.2UF	50WV		
C270			CE04HW1HR22M	NP-ELEC	0.22UF	50WV		
C272,273			CE04KW1A470M	ELECTRO	47UF	10WV		
C274,275			CE04KW1H010M	ELECTRO	1.0UF	50WV		
C298			CK45FB1H102K	CERAMIC	1000PF	K		
C299			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C300			CC45FSL1H470J	CERAMIC	47PF	J		
C301			CE04KW1A470M	ELECTRO	47UF	10WV		
C302			CK45FB1H102K	CERAMIC	1000PF	K		
C303			CE04KW1V100M	ELECTRO	10UF	35WV		
C304			CC45FSL1H100D	CERAMIC	10PF	D		
C305,306			CC45FSL1H390J	CERAMIC	39PF	J		
C307			CC45FSL1H181J	CERAMIC	180PF	J		
C309			CC45FSL1H390J	CERAMIC	39PF	J		
C313			CC45FSL1H220J	CERAMIC	22PF	J		
C314			CC45FSL1H121J	CERAMIC	120PF	J		
C315			CE04KW1V100M	ELECTRO	10UF	35WV		
C316			CE04HW1A220M	NP-ELEC	22UF	10WV		
C317			CK45FB1H102K	CERAMIC	1000PF	K		
C318			CF92FV1H103J	MF	0.010UF	J		
C321,322			CK45FB1H102K	CERAMIC	1000PF	K		
C323-326			CE04KW1A470M	ELECTRO	47UF	10WV		
C327			CC45FSL1H221J	CERAMIC	220PF	J		
C330			CE04KW1HR33M	ELECTRO	0.33UF	50WV		
C331			CC45FSL1H100D	CERAMIC	10PF	D		
C332			CC45FSL1H390J	CERAMIC	39PF	J		
C333			CC45FSL1H100D	CERAMIC	10PF	D		
C334			CC45FSL1H560J	CERAMIC	56PF	J		
C335			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C336			CK45FB1H102K	CERAMIC	1000PF	K		
C338			CK45FB1H102K	CERAMIC	1000PF	K		
C381,382			CF92FV1H104J	MF	0.10UF	J		
C383			CF92FV1H334J	MF	0.33UF	J		
C384			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C385			CE04KW1A470M	ELECTRO	47UF	10WV		
C386,387			CF92FV1H104J	MF	0.10UF	J		
C388			CK45FF1H103Z	CERAMIC	0.010UF	Z		
C389			CF92FV1H334J	MF	0.33UF	J		
C394			CE04KW1A470M	ELECTRO	47UF	10WV		
C401			CC45FSL1H100D	CERAMIC	10PF	D		
C403			CC45FSL1H390J	CERAMIC	39PF	J		
C404			CC45FSL1H100D	CERAMIC	10PF	D		

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PARTS LIST

LVD-K9200

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
C405			CC45FSL1H560J	CERAMIC 56PF J		
C406			CE04KW1V1C0M	ELECTRO 10UF 35WV		
C419,420			CE04KW1A221M	ELECTRO 220UF 10WV		
C431			CC45FSL1H100D	CERAMIC 10PF D		
C432			CC45FSL1H390J	CERAMIC 39PF J		
C433			CC45FSL1H100D	CERAMIC 10PF D		
C434			CC45FSL1H560J	CERAMIC 56PF J		
C435			CC45FSL1H100D	CERAMIC 10PF D		
C436			CC45FSL1H390J	CERAMIC 39PF J		
C437			CC45FSL1H100D	CERAMIC 10PF D		
C438			CC45FSL1H560J	CERAMIC 56PF J		
C439			CE04KW1V100M	ELECTRO 10UF 35WV		
C441,442			CK45FF1H103Z	CERAMIC 0.010UF Z		
C443,444			CK45FB1H102K	CERAMIC 1000PF K		
C445			CC45FSL1H100D	CERAMIC 10PF D		
C446			CE04KW1A470M	ELECTRO 47UF 10WV		
C447,448			CK45FB1H102K	CERAMIC 1000PF K		
C451			CE04KW1V100M	ELECTRO 10UF 35WV		
C452			CE04KW1A101M	ELECTRO 100UF 10WV		
C453			CE04KW1V100M	ELECTRO 10UF 35WV		
C454			CE04KW1A101M	ELECTRO 100UF 10WV		
C455,456			CE04KW1V100M	ELECTRO 10UF 35WV		
C457			CE04KW1A101M	ELECTRO 100UF 10WV		
C458			CK45FF1H103Z	CERAMIC 0.010UF Z		
TC1			C05-0093-05	CERAMIC TRIMMER CAPACITOR(60PF		
TC2			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF		
CN1	3L		E40-4207-05	FLAT CABLE CONECTOR(27P)		
CN51	1J		E40-4207-05	FLAT CABLE CONECTOR(27P)		
J1	3L	*	E63-0109-05	PHONO JACK(AUDIO OUTPUT)		
J2	3L		E63-0100-05	PHONO JACK(AUX IN)		
J4	1K		E56-0006-05	CYLINDRICAL RECEPTACLE(V S.OUT		
J6	1K		E13-0313-05	PHONO JACK(V OUTPUT,AUX IN)		
L1 ,2			L40-6801-17	SMALL FIXED INDUCTOR(68UH,K)		
L3 -5			L40-1511-17	SMALL FIXED INDUCTOR(150UH,K)		
L6			L79-0797-05	LC FILTER		
L7			L40-5691-17	SMALL FIXED INDUCTOR(5.6UH,K)		
L51 ,52			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L53 ,54			L40-1501-17	SMALL FIXED INDUCTOR(15UH,K)		
L55			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		
L56			L40-2701-17	SMALL FIXED INDUCTOR(27UH,K)		
L57			L40-4701-17	SMALL FIXED INDUCTOR(47UH,K)		
L58			L40-2211-17	SMALL FIXED INDUCTOR(220UH,K)		
L59			L40-5691-17	SMALL FIXED INDUCTOR(5.6UH,K)		
L60			L40-3391-17	SMALL FIXED INDUCTOR(3.3UH,K)		
L61			L40-1511-17	SMALL FIXED INDUCTOR(150UH,K)		
L62			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L63			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		
L64			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L65			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		
L66			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L67			L40-1501-17	SMALL FIXED INDUCTOR(15UH,K)		
L68			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L69			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		

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L70			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L71			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		
L72			L40-1091-17	SMALL FIXED INDUCTOR(1UH, K)		
X1			L77-1129-05	CRYSTAL RESONATOR(16.9525MHz)		
X2			L78-0280-05	RESONATOR (10.000MHz)		
X3			L77-2116-05	CRYSTAL RESONATOR(14.3181MHz)		
VR1			R12-1617-05	TRIMMING POT(2.2K)<VIDEO GAIN>		
D1			HSS104	DIODE		
D1			1SS133	DIODE		
D6			1SV101	VARIABLE CAPACITANCE DIODE		
D13			HZS5.6N(B2)	ZENER DIODE		
D13			RD5.6ES(B2)	ZENER DIODE		
D51			1SV147	VARIABLE CAPACITANCE DIODE		
D52 -55			HSS104	DIODE		
D52 -55			1SS133	DIODE		
D56			KV1230Z	VARIABLE CAPACITANCE DIODE		
D57 ,58			HSS104	DIODE		
D57 ,58			1SS133	DIODE		
D60 ,61			HSS104	DIODE		
D60 ,61			1SS133	DIODE		
D63			HSS104	DIODE		
D63			1SS133	DIODE		
D65 ,66			HSS104	DIODE		
D65 ,66			1SS133	DIODE		
IC1			TC74HC00AP	IC(QUAD 2-INPUT NAND GATE)		
IC2			NJM4565D	IC(OP AMP X2)		
IC3			CA0002AM	IC(LD AUDIO SYSTEM)		
IC4			CXD2500BQ	IC(DIGITAL SIGNAL PROCESSOR)		
IC5			NJM4565D	IC(OP AMP X2)		
IC6			SM5872BS	IC(D/A CONVERTER)		
IC7 -10			NJM4565D	IC(OP AMP X2)		
IC11		*	M37451M8-329SP	IC(8 bit MICROPROCESSOR)		
IC12			TC4053BP	IC(3-INPUT 2CH MPX/DE-MPX)		
IC13			TC4053BP	IC(3-INPUT 2CH MPX/DE-MPX)		
IC13			XRU4053B	IC(ANALOG MULTIPLEXER)		
IC51			TC74HCU04AP	IC(CMOS INVERTER)		
IC52			YM3558	IC(VIDEO FM DETECTOR)		
IC53			TC74HC157AP	IC(QUAD 2-CHANNEL MULTIPLEXER)		
IC54			TC74HCU04AP	IC(CMOS INVERTER)		
IC55			TC74HC4066AP	IC(ANALOG SWITCH)		
IC56-58			NJM4565D	IC(OP AMP X2)		
IC59			TC4053BP	IC(3-INPUT 2CH MPX/DE-MPX)		
IC59			XRU4053B	IC(ANALOG MULTIPLEXER)		
IC60,61			NJM4565D	IC(OP AMP X2)		
IC62		*	YVL151C	IC(VIDEO SIGNAL PROCESSOR)		
IC63		*	MC141621	IC(COMB FILTER)		
IC68			TC4053BP	IC(3-INPUT 2CH MPX/DE-MPX)		
IC68			XRU4053B	IC(ANALOG MULTIPLEXER)		
Q1			2SC1923(R,O)	TRANSISTOR		
Q2 ,3			2SC2458(Y,GR)	TRANSISTOR		
Q2 ,3			2SC3311A(Q,R)	TRANSISTOR		
Q4			2SA1048(Y,GR)	TRANSISTOR		
Q4			2SA1309A(Q,R)	TRANSISTOR		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
Q5 -8			2SC2458(Y,GR)	TRANSISTOR		
Q5 -8			2SC3311A(Q,R)	TRANSISTOR		
Q9			DTC124ES	DIGITAL TRANSISTOR		
Q9			UN4212	DIGITAL TRANSISTOR		
Q13			DTA124ES	DIGITAL TRANSISTOR		
Q13			UN4112	DIGITAL TRANSISTOR		
Q15			DTA124ES	DIGITAL TRANSISTOR		
Q15			UN4112	TRANSISTOR		
Q16			2SC2458(Y,GR)	TRANSISTOR		
Q16			2SC3311A(Q,R)	TRANSISTOR		
Q17			DTC124ES	DIGITAL TRANSISTOR		
Q17			UN4212	DIGITAL TRANSISTOR		
Q21			DTA124ES	DIGITAL TRANSISTOR		
Q21			UN4112	DIGITAL TRANSISTOR		
Q22			2SC2458(Y,GR)	TRANSISTOR		
Q22			2SC3311A(Q,R)	TRANSISTOR		
Q23 -28			2SC2878(B)	TRANSISTOR		
Q29			2SC2458(Y,GR)	TRANSISTOR		
Q29			2SC3311A(Q,R)	TRANSISTOR		
Q30			DTC124ES	DIGITAL TRANSISTOR		
Q30			UN4212	DIGITAL TRANSISTOR		
Q31			DTC124ES	DIGITAL TRANSISTOR		
Q31			UN4212	DIGITAL TRANSISTOR		
Q51 ,52			2SC2458(Y,GR)	TRANSISTOR		
Q51 ,52			2SC3311A(Q,R)	TRANSISTOR		
Q53			DTA124ES	DIGITAL TRANSISTOR		
Q53			UN4112	DIGITAL TRANSISTOR		
Q54 ,55			2SC2458(Y,GR)	TRANSISTOR		
Q54 ,55			2SC3311A(Q,R)	TRANSISTOR		
Q56			2SA1048(Y,GR)	TRANSISTOR		
Q56			2SA1309A(Q,R)	TRANSISTOR		
Q57			2SC2458(Y,GR)	TRANSISTOR		
Q57			2SC3311A(Q,R)	TRANSISTOR		
Q59			2SA1048(Y,GR)	TRANSISTOR		
Q59			2SA1309A(Q,R)	TRANSISTOR		
Q60			DTC124ES	DIGITAL TRANSISTOR		
Q60			UN4212	DIGITAL TRANSISTOR		
Q61 -63			2SC1923(R,Ø)	TRANSISTOR		
Q65 ,66			2SC1923(R,Ø)	TRANSISTOR		
Q67 ,68			2SC2458(Y,GR)	TRANSISTOR		
Q67 ,68			2SC3311A(Q,R)	TRANSISTOR		
Q69 -71			2SA1048(Y,GR)	TRANSISTOR		
Q69 -71			2SA1309A(Q,R)	TRANSISTOR		
Q72 ,73			2SC1923(R,Ø)	TRANSISTOR		
Q74			2SA1048(Y,GR)	TRANSISTOR		
Q74			2SA1309A(Q,R)	TRANSISTOR		
Q75			2SK163(L,M)	FET		
Q76			DTA124ES	DIGITAL TRANSISTOR		
Q76			UN4112	DIGITAL TRANSISTOR		
Q81 ,82			2SC1923(R,Ø)	TRANSISTOR		
Q83			2SC2458(Y,GR)	TRANSISTOR		
Q83			2SC3311A(Q,R)	TRANSISTOR		
Q84			2SA1048(Y,GR)	TRANSISTOR		
Q84			2SA1309A(Q,R)	TRANSISTOR		
Q85 ,86			2SC2458(Y,GR)	TRANSISTOR		

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Q85 ,86			2SC3311A(Q,R)	TRANSISTOR		
Q87 ,88			2SA1048(Y,GR)	TRANSISTOR		
Q87 ,88			2SA1309A(Q,R)	TRANSISTOR		
Q89 -92			2SC1923(R,Ø)	TRANSISTOR		
Q93 ,94			2SC2458(Y,GR)	TRANSISTOR		
Q93 ,94			2SC3311A(Q,R)	TRANSISTOR		
Q95 ,96			2SA1048(Y,GR)	TRANSISTOR		
Q95 ,96			2SA1309A(Q,R)	TRANSISTOR		
Q97 ,98			2SC2003(L,K)	TRANSISTOR		
Q99			2SC2458(Y,GR)	TRANSISTOR		
Q99			2SC3311A(Q,R)	TRANSISTOR		
Q100			2SA1048(Y,GR)	TRANSISTOR		
Q100			2SA1309A(Q,R)	TRANSISTOR		
Q101,102			2SC2003(L,K)	TRANSISTOR		
Q103			2SC1923(R,Ø)	TRANSISTOR		
Q104			2SC2458(Y,GR)	TRANSISTOR		
Q104			2SC3311A(Q,R)	TRANSISTOR		
MECHANISM ASS'Y (X92-1900-10)						
⚠ 1	1H	*	D10-3453-08	LEVER		
2	2H		D10-3406-04	LEVER		
3	1H		D10-3407-03	ARM		
4	2H		D10-3408-04	ARM ASSY		
5	2H		D10-3425-08	ARM ASSY		
6	2G		D10-3428-08	ARM ASSY		
7	1H		D13-1555-08	WORM		
8	1H,2H		D13-1557-04	GEAR		
9	2G,2H		D14-0352-08	ROLLER		
⚠ 10	1H	*	D10-3452-08	ROD		
11	2H		D19-0281-04	LEAD SCREW		
⚠ 12	3H	*	F19-1045-08	SHIELDING PLATE		
13	2H		G01-3605-04	EXTENSION SPRING		
14	2H		G01-3618-08	TORSION COIL SPRING		
15	2G		G01-3651-08	COMPRESSION SPRING		
16	1H		J21-6043-18	MOTOR MOUNTING HARDWARE		
17	2H,3H		N09-3020-05	ADJUSTABLE SCREW		
18	2H		N09-3026-05	SEMS (MACHINE SCREW)		
19	2G,2H		N09-3027-05	SEMS (MACHINE SCREW)		
20	1H		N09-3031-05	MACHINE SCREW (M2X2.5)		
⚠ 21	2H	*	N09-3079-05	MACHINE SCREW (2X8)		
22	1H		N19-0891-04	FLAT WASHER		
23	2G,2H		N19-1345-04	FLAT WASHER		
24	3H		N35-2003-46	BINDING HEAD MACHINE SCREW		
25	2H		N35-2006-46	BINDING HEAD MACHINE SCREW		
26	2H		S33-1022-05	LEVER SWITCH(Z UP/DOWN)		
27	1H		T42-0637-05	DC MOTOR(TILT)		
28	1H		T42-0643-08	MOTOR ASSY(Z SERVO)		
PU	1H		X93-1020-00	OPTICAL PICKUP ASSY		
MECHANISM ASS'Y (X92-1910-10)						
⚠ 30	3G	*	A11-1003-02	SUB CHASSIS ASSY		
31	1E		A11-1006-02	SUB CHASSIS		

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32	2D		A11-1007-03	SUB CHASSIS ASSY		
33	1A	*	A11-1009-12	SUB CHASSIS		
34	3D		A11-1010-12	SUB CHASSIS		
35	2B	*	A11-1012-12	SUB CHASSIS CALKING ASSY		
36	1B		A11-1014-03	SUB CHASSIS CALKING ASSY		
37	2F		B09-0244-04	CAP		
38	1B		B09-0246-04	CAP		
39	1A, 3D		D23-0302-04	RETAINER		
40	2E		D02-0121-03	TURNTABLE PLATTER		
41	3F		D10-3410-14	ROD		
42	3F		D10-3411-14	ROD		
43	2F		D10-3412-03	ARM		
44	2E		D10-3413-04	ARM		
45	1A		D10-3415-02	SLIDER(L)		
46	3D		D10-3416-02	SLIDER(R)		
47	2B	*	D10-3418-14	ARM ASSY		
48	2F		D13-1561-03	GEAR		
49	1D	*	D13-1562-14	GEAR		
50	1D		D13-1563-04	GEAR		
51	1D		D13-1564-04	GEAR		
52	1D		D13-1565-04	GEAR		
53	1D		D13-1566-04	GEAR		
54	1D		D13-1567-04	GEAR		
55	1D		D13-1568-04	GEAR		
56	2B		D13-1569-04	GEAR ASSY		
57	1B		D13-1571-04	GEAR		
58	2G		D13-1572-04	GEAR		
59	2G		D13-1573-04	GEAR		
60	2G		D13-1574-04	GEAR		
61	2G		D13-1593-04	GEAR		
62	1B, 2B		D14-0351-04	ROLLER		
63	2G		D15-0353-04	PULLEY		
64	3F, 2G		D15-0354-04	PULLEY ASSY		
65	2D		D15-0356-04	MOTOR PULLEY		
66	3H		D15-0357-04	MOTOR PULLEY		
67	1D		D16-0329-04	BELT		
68	2F		D16-0353-05	BELT		
69	2G		D16-0354-04	BELT		
70	2G		E35-0723-05	FLAT CABLE ASSY		
⚠ 71	2A	*	F31-0241-04	REINFORCING HARDWARE		
⚠ 72	1G	*	F31-0239-03	REINFORCING HARDWARE		
⚠ 73	1E	*	F31-0240-14	REINFORCING HARDWARE		
74	3G		G11-2175-04	CUSHION		
75	3F		G01-3606-04	COMPRESSION SPRING		
76	2G	*	G01-3607-14	TORSION COIL SPRING		
77	2E		G01-3608-04	COMPRESSION SPRING		
78	2C		G01-3609-04	COMPRESSION SPRING		
79	2C		G01-3610-04	COMPRESSION SPRING		
80	1A, 3D		G01-3619-04	EXTENSION SPRING		
81	2G		G01-3641-14	COMPRESSION SPRING		
82	1B		G02-1031-04	FLAT SPRING		
83	2E		G16-0819-04	SHEET		

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84	3A		G16-0821-04	SHEET		
⚠ 119	3H	*	G11-2194-04	CUSHION		
85	1C		J11-0195-03	CLAMPER		
86	2C		J11-0196-03	CLAMPER		
87	3F		J19-3602-04	BRACKET		
88	2F, 3G		J19-3605-04	HOLDER		
89	3F		J19-3606-04	HOLDER		
90	3E		J19-3615-03	HOLDER		
91	2G		J19-3639-04	HOLDER		
92	3G		J21-6048-04	MOUNTING HARDWARE ASSY		
93	1C		J42-0165-04	BUSHING		
94	1E		J90-0807-02	GUIDE		
95	2E		J90-0808-03	GUIDE		
96	1C		J90-0809-03	GUIDE		
97	3A		J99-0533-13	TRAY ASSY		
98	3H		J80-0006-08	FLEXIBLE PRINTED WIRING BOARD		
99	3E		N09-2650-05	MACHINE SCREW		
100	1C		N09-2696-15	STEPPED SCREW		
101	2F		N09-2769-05	MACHINE SCREW		
102	3F		N09-2865-05	MACHINE SCREW (M2X4.5)		
103	2E		N09-3021-05	MACHINE SCREW		
104	1C		N09-3022-05	MACHINE SCREW		
105	3F		N09-3045-05	ADJUSTABLE SCREW		
106	1D		N19-0016-04	FLAT WASHER		
107	2B, 2G		N19-0366-04	FLAT WASHER		
108	1D		N19-0880-04	FLAT WASHER		
109	1D		N19-0891-04	FLAT WASHER		
110	1D		N35-2604-46	BINDING HEAD MACHINE SCREW		
111	3G		N35-2612-46	BINDING HEAD MACHINE SCREW		
112	2G		N35-3005-46	BINDING HEAD MACHINE SCREW		
113	1F, 2E		N89-2606-46	BINDING HEAD TAPTITE SCREW		
114	3E, 3F		N89-2608-46	BINDING HEAD TAPTITE SCREW		
115	1A, 3D		N89-3006-45	BINDING HEAD TAPTITE SCREW		
116	2E, 3E		N89-3008-46	BINDING HEAD TAPTITE SCREW		
117	2A, 3B		N89-3010-46	BINDING HEAD TAPTITE SCREW		
118	3G		N95-2632-46	HEXAGON SOCKET HEAD BOLT		
119	3E		N09-2616-05	SET SCREW		
120	3E		T42-0646-05	DC MOTOR (DISC MOTOR)		
122	2E		T50-1062-04	YOKE		
123	2C		T50-1063-04	YOKE ASSY		
DM	3E		T42-0645-03	DISC MOTOR ASSY		
FM	3H		T42-0654-05	FEED MOTOR		
LM	2D		T42-0524-05	LOADING MOTOR		

L: Scandinavia K: USA P: Canada R: Mexico
Y: PX (Far East, Hawaii) T: England E: Europe G: Germany
Y: AAFES (Europe) X: Australia M: Other Areas

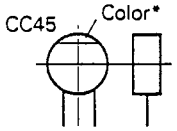
⚠ indicates safety critical components.

PARTS LIST

CAPACITORS

CC 45 TH 1H 220 J
1 2 3 4 5 6

1 = Type ... ceramic, electrolytic, etc.
2 = Shape ... round, square, ect.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance



• Capacitor value

010 = 1pF
100 = 10pF
101 = 100pF
102 = 1000pF = 0.001μF
103 = 0.01μF

2 2 0 = 22pF
0 = Multiplier
2 = 2nd number
2 = 1st number

• Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	–80	–150	–220	–330	–470	–750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500

Example : CC45TH = –470 ± 60ppm/°C

• Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40 –20	+80 –20	+100 –0	More than 10μF – 10 ~ +50 Less than 4.7μF –10 ~ +75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

• Voltage rating

1st word \ 2nd word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	–
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	–
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	–

• Chip capacitors

(EX) C C 7 3 F S L 1 H 0 0 0 J
1 2 3 4 5 6 7
(Chip) (CH, RH, UJ, SL)

(EX) C K 7 3 F F 1 H 0 0 0 Z
1 2 3 4 5 6 7
(Chip) (B, F)

Refer to the table above.
1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

Dimension (Chip capacitors)

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0

RESISTORS

• Chip resistor (Carbon)

(EX) R K 7 3 E B 2 B 0 0 0 J
1 2 3 4 5 6 7
(Chip) (B,F)

Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6±0.2	0.8±0.2	0.5±0.1

• Carbon resistor (Normal type)

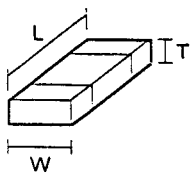
(EX) R D 1 4 B B 2 C 0 0 0 J
1 2 3 4 5 6 7

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Rating wattage
6 = Value
7 = Tolerance

Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

Dimension



LVD-K9200

SPECIFICATIONS

Type

Video disc format ..... Laser Vision format
Signal read system ..... Semiconductor laser
Video output format ..... NTSC

Characteristics

Video output level ..... 1Vp-p (75Ω load, synch.)
Horizontal resolution ..... 420 lines
Video signal to noise ratio ..... More than 50dB (S-out)
Digital audio section (during normal playback)
Frequency response ..... 20Hz ~ 20kHz
Signal to noise ratio ..... 98dB or higher
Total harmonic distortion
..... Less than 0.006% (1kHz)
Wow & Flutter
..... Below measurable limit (±0.001% W.PEAK)
Output level/impedance
..... 200mV/1kΩ (digital audio, –20dB)

Allowable operating temperature range
..... 5°C ~ 40°C
Allowable operating humidity range
..... 5% ~ 90% (condensation should not form)

General

Rated power consumption 45W
Maximum external dimensions
W x H x D ..... 440 x 147 x 454 (mm)
Weight (net) 11.0kg

NOTE : KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Note :
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the General Market (M) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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